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ABSTRACT

Data obtained from thousands of respondents to the Base-Year Student Questionnaire and First Followup Questionnaire of the National Longitudinal Study of the High School Class of 1972 were used to investigate self-esteem, locus of control, and work-, community-, and family-related life goals, and to generate profile means and standard deviations for subpopulations. Specifically, the following questions were addressed: 1) what base-year differences exist among subgroups defined by demographic and personal characteristics (sex, ethnicity, socioeconomic status, ability, and high school program) and on the basis of modal post high school planning and activity sequences? 2) What differences exist at the time of the first followup study, particularly among groups differing in post high school activities and sequences in the transition from high school to adult roles? 3) How are the changes in self-esteem, locus of control, and goal orientations related to demographic and personal characteristics, transitional sequences, and changes in activities? Clear and predictable differences were found among subgroups; most differences existed at the time of the base-year assessment and were unmodified as of the first followup. Differences for subgroups classified according to activity and transitional states were more marked; those showing the greatest changes in profiles appeared to be those with the greatest changes in activities. (Author/EVH)

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NATIONAL LONGITUDINAL STUDY

OF HIGH SCHOOL SENIORS

Group Profiles on Self-Esteem, Locus of Control, and Life Goals

NCES 77-260

NATIONAL LONGITUDINAL STUDY OF HIGH SCHOOL SENIORS

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Project Officer
Kenneth A. Tabler
National Center for Education Statistics

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Joseph A. Califano, Jr., *Secretary*

Education Division
Mary F. Berry, *Assistant Secretary for Education*

National Center for Education Statistics
Marie D. Eldridge, *Administrator*

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
WASHINGTON: 1977

FOREWORD

The National Longitudinal Study of the High School Class of 1972 is a large-scale, long-term survey supported primarily by the National Center for Education Statistics (NCES) in the Education Division, U.S. Department of Health, Education, and Welfare (DHEW). The survey seeks to provide statistics on a national sample of students as they move out of the American high school system into the critical years of early adulthood. The base-year survey data, collected by the Educational Testing Service, have been integrated with the first followup survey data by the Research Triangle Institute (RTI). RTI has processed the data and is providing major findings in a series of reports to NCES, each with a central theme. NCES, in turn, prepared this report from one in the series, with some minor revisions aimed mainly at eliminating material considered extraneous to the substance of the report. No attempt has been made to alter conclusions or change meaning in any way.

Elmer F. Collins, Chief
Longitudinal studies Branch

Francis V. Corrigan, Deputy Director
Division of Multilevel Education Statistics

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I. INTRODUCTION

Leaving high school years is critical for most adolescents. They face significant development tasks which, if mastered, contribute to their healthy and satisfactory growth.[1] Physical maturation, cultural pressure from society, and the individual's personal values and aspirations comprise the psychological focus for this study.

Typical of the tasks confronting the adolescent are: achievement of emotional independence from parents and other adults; achievement of economic independence; selection and preparation for an occupation; and preparation for marriage and family life, including achievement of new and mature relations with age-mates of both sexes.

Reaction to new experiences and role demands will produce a variety of attitudinal and personality changes in young adults, particularly in how they view themselves, in their perceptions of their control of personal and environmental contingencies, and in the life goals they deem important. Some changes may be relatively universal; for example, researchers[2] have demonstrated that self-esteem increases through early adulthood and the perceived locus of control over self and the environment becomes more internal.[3] This universality provides an optimistic picture since the research literature presents internal individuals as generally effective and competent. Other changes are expected to be linked with specific kinds of experiences, for example, to the extent that personal success increases self-esteem, it can be seen as a way of assessing the impact of experiences and current environment on the individual (Bachman and O'Malley, 1975). Research shows that perceived locus of control shifts in the internal direction when the individual masters his environment and in the external direction when he fails to.[4]

The psychological adjustments of young adults in connection with these transitions and changes in environmental context and role demands are of major interest. While adjustment and development may be indexed in many ways, the constructs of self-esteem, locus of control, and attitudes about work, community, and family orientations were considered especially important and sensitive to change.

Various hypotheses could be offered about self-esteem, locus of control, and goal orientations in relation to classification variables and transition sequences; however, it seemed best simply to describe and index these relationships. Thus, this report uses Base-Year and First Followup Questionnaire data on self-esteem, locus of control, and work-, community-, and family-related goal activities to generate profiles of subpopulations defined on the basis of demographic and personal characteristics and on the basis of career patterns. More specifically, the following questions are addressed:

1) What base-year differences exist among the subgroups defined by demographic and personal characteristics (sex, ethnicity, socioeconomic studies (SES), ability and high school program) and on the basis of modal planning and activity sequences?
2) What differences exist at the time of the first followup, particularly among groups differing in post high school activities and transition state sequences?
3) How are the base-year to first followup changes in self-esteem, locus of control and goal orientations related to demographic and personal characteristics, transition sequences and changes in activities?

The answer to these questions will be used in describing the psychological status differences associated with background and demographic variables and transition sequences and activities. Additionally, the results will be used in hypothesizing possible casual roles of the psychological attributes.

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[1] R. J. Havighurst. (In all references, refer to bibliography for full citations.)
[2] J. G. Bachman and P. M. O'Malley; N. Rosenberg.
[3] J. B. Rotter.
[4] J. B. Rotter; H. M. Lefcourt.

II. DATA COLLECTION

The NLS base-year and first followup data are used separately and jointly to answer the questions posed in the introduction. The NLS data base is exceptionally rich; its longitudinal design based upon a national probability sample permits analyses yielding valuable information concerning the psychological, educational and career development of young adults. The methods employed in collecting the data are described below

A. The Sample

The sample consisted of a deeply stratified 2-stage probability sample with schools as first-stage sampling units and students as second-stage units. The population comprised all 1972 twelfth graders enrolled in all public, private, and church-affiliated high schools in the 50 states and the District of Columbia. The first-stage sampling frame was constructed from computerized school files maintained by the Office of Education and by the National Catholic Education Association.

The school sampling frame was stratified into 600 final strata based on the following variables:

- type of control (public or nonpublic);
- geographic region (Northeast, North Central, South, and West);
- grade 12 enrollment (less than 300, 300 to 599, and 600 or more);
- proximity to institutions of higher learning;
- percent minority group enrollment;
- income level of the community; and
- degree of urbanization.

To increase the number of disadvantaged students in the sample schools located in low-income areas and schools with high proportions of minority group enrollments were sampled at approximately twice the sampling rate used for the remaining schools. Schools in the smallest grade enrollment strata (less than 300 seniors) were selected with probabilities proportional to their estimated numbers of senior students and without replacement. Schools in the remaining strata were selected with equal probabilities and without replacement. Within each final stratum, four schools were selected initially and then two of the four were randomly selected and designated as the primary selections. The other two schools were retained as backup or substitute selections and were used only if one or both of the primary schools did not cooperate (e.g., refused, ineligible). Samples of 18 students per school were selected and five additional students were selected as alternates. The students were sampled with equal probabilities and without replacement within schools.

The sample design involved 1,200 primary sample schools and 21,600 students (18 per school). Of the 1,200 primary sample schools, 949 participated in the base-year survey, 21 had no seniors enrolled and 230 either refused to participate or could not participate because the request was received too late in the school year. However, 121 backup schools participated, bringing the total number of participating base-year schools to 1,070 and a total of 16,683 respondents who completed the Base-Year Student Questionnaire.

Since many schools did not respond in the base-year survey, further attempts were made to secure participation of the 230 nonparticipant primary sample schools and replacements for the 21 schools that had no seniors. This "resurvey" activity, initiated by NCES prior to the first followup survey, involved securing school cooperation and selecting random samples of up to 18 former students (1972 seniors) per school. The "resurvey" activities were successful in 204 of the 230 primary sample schools; thus, students from 1,153 of the 1,200 primary sample schools were included in the first followup survey. Adding 131 backup schools (dropping 26 of the original 121 and adding an additional 36 to insure at least two schools per stratum) and 16 sample augmentation schools (i.e., additional schools not covered in the original school sampling frame) increased the total number of participating schools to 1,300. Respondents to the first followup survey provided 21,350 First Followup Questionnaires.

B. Instruments

1. Base-Year Instruments

Each student in the sample was asked to complete the Base-Year Student Questionnaire, containing 104 questions distributed over 11 major sections, and dealing with factors related to the student's personal-family background, educational and work experiences, plans, aspirations, attitudes, and opinions.

In addition to this questionnaire, each student was asked to take a 69-minute Test Book, measuring both verbal and nonverbal ability, and consisting of the following six tests: Vocabulary, Picture Number (measure of associative ability), Reading, Letter Groups (measure of inductive reasoning), Mathematics, and Mosaic Comparisons (measure of perceptual speed and accuracy).

Base-year data were also obtained from a student's School Record Information Form (SRIF), including high school curriculum, grade-point average, credit hours in major courses, and, if applicable, position in ability groupings, remedial-instruction record, involvement in certain federally supported programs, and scores on standardized tests.

Finally, for each participating high school, information was obtained from a School Questionnaire and one or two Counselor Questionnaires. Counselor questionnaire information was not obtained from schools involved in the "resurvey" activity.

2. First Followup Instruments

Two forms (A and B) of a First Followup Questionnaire were developed and designed to be filled out by the student. Form A was mailed to each sample member who responded to the Base-Year Student Questionnaire. Seniors from the class of 1972 who were unable to participate in the base-year survey (usually because of time and scheduling considerations) were mailed Form B of the questionnaire. Questions 1 through 85 were identical for both questionnaire forms and dealt with the respondent's activities (e.g., education, work, etc.) in October 1972 and October 1973; socioeconomic status; work and educational experiences since leaving high school; and educational and career plans, aspirations, and expectations. Form B of the First Followup Questionnaire contained an additional 14 questions to take the place of missing base-year information.

Most Base-Year Student Questionnaire and First Followup Questionnaire items were forced-choice. Open-ended, or free-response, questions were limited to items involving dates, income, number of hours or weeks worked, and the like.

C. Procedures

1. Base-Year Data Collection

Most student data were collected in April, May, and June 1972 through group administration of the questionnaire in each school by local school-based survey administrators. Survey administrators also completed School Record Information Forms (SRIFs) for each participating student, and administered the School and Counselor Questionnaires.

2. First Followup Data Collection

The first step in data collection involved an extensive tracing operation to update name and address files. The major mailout of 23,020 First Followup Questionnaires to the last known addresses of potential respondents was made on 23-24 October 1973. A planned sequence of reminder postcards, additional questionnaire mailings, and reminder mailgrams to nonrespondents followed. Active mail return efforts continued through December 1973; and by early February 1974, the questionnaire return rate by mail was 60.9 percent.

The names and addreses of those sample members who failed to mail back their questionnaires were then turned over to the Bureau of the Census for personal interview in accordance with a Bureau arrangement with the U. S. Office of Education. This personal interview phase of first followup data collection continued until April 7, 1974, by which time the overall response rate had increased to 92.7 percent—21,350 respondents out of 23,020.

D. Data Processing

The data were manually edited, keyed to tape, and then extensively machine edited. Editing was extremely complex and comprehensive, reflecting the complexity of the instruments in terms of, for example, skip patterns within the questionnaire, and the effort to create a data file that was as faithful to the hard copy as possible.

E. Estimating Population Means and Standard Deviations

All means and standard deviations presented in this report are weighted estimates of population means and standard deviations. Unadjusted student weights were calculated as the inverses of sample inclusion probabilities for all students sampled. The weights were then adjusted for questionnaire nonresponse by a weighting class method. The weighting class procedure involves defining homogeneous (weighting) classes and then adjusting the respondent's weights for questionnaire nonresponse on the basis of weight totals for his or her unique weighting class. The weighted mean for variable k for the total population, for example, was calculated as

$$M_k = \frac{\sum_{i}^{n} X_{ik} w_i}{\sum_{i}^{n} w_i}$$

where:

n = the total number of respondents for whom data were available;

w_i = the appropriate adjusted weight for respondent i; and

X_{ik} = the score of respondent i on variable k.

Standard errors for the various means presented in this report can be estimated by referring to standard error tables and directions for their use, included as appendix B.

III. MEASUREMENT SPECIFICATIONS OF SELF-ESTEEM, LOCUS OF CONTROL, AND LIFE GOALS

This report presents group profiles means and standard deviations on self-esteem, locus of control, and three life goals. These psychological attributes are measured by scales based on item source and factor analyses of item sets using data from the Base-Year Student Questionnaire. From a face-validity viewpoint each scale reflects a conceptually appealing factor. To prevent artifactual correlations among the scales, no single item appears in more than one scale. The same scale structure is used for the First Followup Questionnaire. Thus, each participant has two scores for each of the five scales, one score for the Base-Year and one for the First Followup Questionnaire.

A. Personality Attributes: Self-Esteem and Locus of Control

The self-esteem scale consists of four items, each five response choices ranging on a continuum from "disagree strongly" to "agree strongly." Corresponding numerical scores for the response choices are 1 to 5, with 5 indicating strong agreement. The four items were taken from an 11-item self-esteem scale:[5]

(1) I take a positive attitude toward myself.
(2) I feel I am a person of worth, on an equal plane with others.
(3) I am able to do things as well as most other people.
(4) On the whole, I'm satisfied with myself.

Like the self-esteem scale, the locus-of-control scale consists of four items, each with five response options ranging from "disagree strongly" to "agree strongly." Items were scored so that disagreement, indicating an internal locus of control, was scored "5." Thus, high scores on the locus-of-control scale indicate "internality" while low scores indicate "externality." The items are:

(1) Good luck is more important than hard work for success.
(2) Every time I try to get ahead, something or somebody stops me.
(3) Planning only makes a person unhappy since plans hardly work out anyway.
(4) People who accept their condition in life are happier than those who try to change things.

Since all eight of the above items appear together in the student questionnaires and, to some degree involve self-report of personality characteristics, a principal axis factor analysis was done on all eight items. A two-factor varimax solution on the item intercorrelations strongly confirmed the existence of two distinct scales corresponding to the self-esteem and locus-of-control scales described above. The factor loadings (table 1) show a good simple structure with high loadings for self-esteem items on the locus-of-control factor. An opposite pattern of loading exists for the locus-of-control items.

Table 1.--Factor loadings for self-esteem and locus-of-control items

Item	Self-esteem Factor I	Locus of control Factor II
Self-esteem		
Positive attitude (1)*	0.73	-0.09
Equal worth (3)	.72	-.13
Able to do as well as most people (4)	.69	-.05
Satisfied (8)	.65	.08
Locus of control		
Luck more important than work (2)	.08	.60
Try to get ahead, but stopped (5)	-.22	.65
Plans hardly work out (6)	-.14	.73
Accept condition (7)	.04	.62

* Numbers in parentheses indicate order of appearance in questionnaires.

[5] M. Rosenberg.

In addition to the factor structure, internal consistency was examined for each scale. Coefficient alpha was .66 for the self-esteem scale and .56 for the locus-of-control scale. These values are reasonably high, since only four items appear in each scale. Other locus-of-control scales have internal consistency and test-retest reliabilities of only a slightly larger magnitude even though they include many more items. For example, the 23-item Rotter locus-of-control scale[6] has reliabilities ranging from the low .40's to the low .80's with a median value of approximately .65.[7]

Table 2 presents the weighted item means and standard deviations from the base-year survey. These data clearly show that both the self-esteem and locus-of-control means are well above the scale midpoint (3.0), indicating that most respondents reported a positive self-concept and an internal stance on locus of control. The item standard deviations indicate a fair amount of variability for both self-esteem and locus of control.

Table 2.--Base-year means and standard deviations of self-esteem and locus-of-control items

Item	Weighted mean	Weighted standard deviation	Total base-year sample N
Self-esteem items			
Positive attitude	3.89	0.96	16480
Equal worth	4.10	.81	16382
Able to do as well as most people	4.04	.81	16388
Satisfied	3.60	1.10	16450
Locus-of-control items			
Luck more important than work	4.16	.92	16476
Try to get ahead, but stopped	3.65	1.03	16431
Plans hardly work out	3.80	1.12	16461
Accept condition	3.42	1.30	16456

Based on the distinct item sources and the confirmatory factor analytic support, separate self-esteem and locus-of-control scale scores were calculated for each person. Appropriate item scores were simply summed and divided by the number of items available (i.e., nonmissing items). The resulting scale scores were used in all subsequent analyses.

B. Life Goals

Three scales were derived from the 10 base-year items measuring the importance of life goals. Each item had three response options: "not important," "somewhat important," and "very important." The corresponding codes were 1, 2, and 3; however, in order to present the life-goal results on a numerical scale similar to the self-esteem and locus-of-control scales, the item options were respectively scored 1, 3, and 5. The three scales and their items were:

Work Scale

Being successful in my line of work
Having lots of money
Being able to find steady work

Community Scale

Being a leader in my community
Being able to give my children better opportunities than I have had
Working to correct social and economic inequalities

[6] J. B. Rotter

[7] J. B. Rotter; P. D. Hersch and K. E. Scheibe.

Family Scale

Finding the right person to marry and having a happy family life
Living close to parents and relatives
Getting away from this area of the country (scored in opposite direction)

Independent Item

Having strong friendships

The composition of these scales was based on the results of a factor analysis of all ten goal-related items. A 3-factor principal axis solution followed by a varimax rotation yielded a fairly satisfactory simple structure. Table 3 gives results of the factor analysis.

Table 3.--Factor structure of life-goal items

Item	Orientation factors		
	Work	Community	Family
Work scale			
Success in work (1)*	0.62	0.13	0.13
Having lots of money (3)	.73	.04	-.09
Finding steady work (5)	.69	.12	.19
Community scale			
Being a leader (6)	.31	.60	.03
Giving children opportunities (7)	.34	.43	.33
Working to correct inequalities (10)	-.22	.81	-.09
Family scale			
Marriage and family (2)	.23	.15	.55
Living close to parents and relatives (8)	.08	.25	.53
Getting away (9)	.12	.26	-.74
Item not appearing in any scale			
Having strong friendships (4)	.10	.34	.22

* Numbers in parentheses indicate item order in questionnaires.

Internal consistencies were calculated for each of the three derived scales. The coefficient alphas were .53, .44, and .30 for the work, community and family scales, respectively. The internal consistency values for the community and work scales were relatively low and may limit differences among groups and complicate interpretation of change scores.

Weighted item means and standard deviations are presented in table 4. The item means indicated high endorsement for 5 of the 10 items: success in work, finding steady work, giving children better opportunities, finding a satisfactory spouse, and having strong friendships. The remaining items had means near or below the midpoint (3.0). The item standard deviations were generally large, indicating high variability among individuals.

Scale scores for individuals were based on a simple average of the item scores (based on the number of available items). However, item 3 in the family scale was scored in a direction opposite to the remaining items due to its reciprocal relationship (empirically and conceptually) with the remaining two items.

Table 4.--Base-year means and standard deviations for life-goal items

Item	Weighted mean	Standard deviation	Sample N
Work scale			
Success in work	4.56	0.81	16564
Having lots of money	2.91	.127	16498
Finding steady work	4.50	.99	16483
Community scale			
Being a leader	2.31	1.35	16474
Giving children opportunities	4.21	1.22	16430
Working to correct inequalities	3.12	1.38	16466
Family scale			
Marriage and family	4.54	1.05	16494
Living close to parents and relatives	2.15	1.26	16492
Getting away	2.15*	1.46	16474
Item not included in any scale			
Having strong friendships	4.54	.3	16520

* This value is the mean of the reflected scale, i.e., "*not* getting away."

IV. MAJOR CLASSIFICATION GROUPS: ANALYSES AND RESULTS

Weighted means and standard deviations were computed for each of the five scales for the total group and various subgroups defined by the major demographic and personal variables of sex, ethnicity, SES, ability and high school program. Because the sample was a stratified probability sample instead of a simple random sample, the weighting procedure is necessary for obtaining unbiased estimates of population values.

The five psychological scales were included in the Base-Year Student Questionnaire (Spring 1972) and in the First Followup Questionnaire (October 1973 through April 1974). These are respectively referred to as the base-year and first followup scores. The base-year sample comprised over 16,000 respondents, augmented by about 4,000 additional respondents during the first followup. Since this report describes all base-year and first followup respondents, as well as providing an analysis of first followup versus base-year differences, several different samples were involved: the Base-Year Total (including all base-year respondents); the First Followup Total (including base-year respondents plus resurvey respondents) and the Base-Year and First Followup Common Group (i.e., all persons with both base-year and first followup scores). Most analyses were based on the last sample.

A. Total Group Profiles

Table 5 gives weighted means and standard deviations for the five psychological attribute scales for the total base-year and first followup samples; table 6 gives them for the common sample. Relative to the scale midpoints (3.0), the base-year means showed high self-esteem, an internal stance on locus of control, and a positive endorsement of all three life goals. Of the three life goals, work received the highest, and community the lowest, ratings. The standard deviations indicate a fairly large dispersion of scores, especially for community and family life goals.

The means of the first followup groups indicated some slight shifts compared to the base-year. In particular, the mean on self-esteem was higher and locus of control slightly more internal. Work and community goals were apparently valued less since the means had shifted toward the midpoint, while family goals were apparently valued more, with a mean shift toward more positive endorsements.

Table 5.--Means and standard deivations of the psychological scales for base-year and first followup total groups

Group	Self-esteem	Locus of control	Work	Community	Family
Base-year total (Base-year data)					
Mean	3.91	3.75	4.02	3.20	3.51
Standard deviation	.65	.72	.74	.90	.88
N	16588	16570	16601	16570	16581
First followup total (First followup data)					
Mean	4.12	3.84	3.84	3.04	3.71
Standard deviation	.55	.66	.77	.89	.79
N	20107	20087	20144	20104	20127

Table 6.–Means and standard deviations of the psychological scales for base-year first followup common sample

Group	Self-esteem	Locus of control	Work	Community	Family
Base-year data					
Mean	3.91	3.76	4.02	3.21	3.52
Standard deviation	.65	.72	.91	91	.86
First followup data					
Mean	4.12	3.86	3.83	3.01	3.70
Standard deviation	.56	.66	.76	.88	.78
Difference (FFU-BY)					
Mean	.20	.09	−.18	−.19	.18
Standard deviation	.68	.76	.82	.95	.94
N	14747	14717	14774	14723	14741

B. Profiles of Subgroups

A primary purpose of this report is to use psychological attributes to describe various subgroups formed by major classification variables (sex, ethnicity, SES, ability, plans, high school program). Two methods are employed: first, each subgroup is described by a base-year and first followup profile (whose elements are the attributes of self-esteem, locus of control, and work, community, and family life goal orientations); second, the subgroups within each classification variable are compared with one another, using base-year, first followup, and change score means and standard deviations.

Descriptions of the subgroup profiles represent interpretations based on deviations of subgroup means from the mean of the respective base-year or first followup common group means. For example, the base-year group mean for self-esteem is 3.91, indicating a positive self-concept relative to the item response options "strongly agree," "agree," etc.; however, in describing a subgroup, the term "high self-esteem" is used to typify a subgroup mean significantly greater than the total group mean, and "low self-esteem" typifies a subgroup mean significantly less than the total group mean. Except where noted, the modifiers "high," "average," "low," etc., are relative and not absolute terms. The necessity for this is clear: the psychological attributes are measured on arbitrary scales. Thus, even though the total group self-esteem mean is high relative to the scale options, the mean represents "average" self-esteem in the population.

Since the NLS study is based on a large number of observations, statistical estimation can be quite precise; however, it is expected that many among-group differences will be small but statistically significant at conventional levels. Consequently, in addition to requiring statistical significance, preference goes to interpreting and discussing differences that exceed one-fourth of a standard deviation. Any between-group difference less than this could not (even under the optimal conditions of only two groups with equal sample sizes) associate as much as 2 percent of the total variance of the dependent measure with the classification variable. Differences which equal .28 standard deviation units for two equal-sized subgroups are equivalent to an r^2 of .02. Increasing the number of subgroups and/or making the subgroup frequencies disproportionate reduces this variance accounted for. The same criterion is used for change scores as for base-year or first followup comparisons.

In the interest of economy, when there is not a significant or large deviation from the total group on a particular attribute, profile description of that variable is usually omitted. Similarly, since base-year to first followup changes have already been described for the entire sample, change scores are discussed when all subgroups on a particular classification show changes similar in magnitude and direction. Descriptions and interpretations are made if some subgroups show significant deviations from the general base-year to first followup changes of enhanced self-esteem, greater internality, more positive ratings for family goals and less positive ratings for work and community goals.

C. Male and Female Profiles

The male and female profiles are shown in Figure 1, and means, standard deviations, and sample sizes for the five psychological attributes are presented in appendix A, table A.1. Generally speaking, neither males nor females deviated to any great degree from the total group profile. The means show that males considered work more important than females did, not unexpectedly in light of societal norms and sex-role socialization.

The differences between males and females were fairly small on all five variables and, in particular, on self-esteem, community orientation, and family orientation. On family orientation there was, however, a tendency in the first followup for females to value family life goals more than males did, a difference that increase over time, especially for females who adopt the traditional homemaker role.

On the locus of control measure, females appeared slightly more internal than did males, particularly during the base-year. While sex differences on locus of control have been documented in the psychological literature,[8] the trend has been for females to be more internal than males for younger age groups (grades 3-8), but in later years the difference is either nonexistent or reversed.[9] The current data are consistent with these findings.

D. Ethnic Group Profiles

The report compares three ethnic groups: white, black, and Hispanic (i.e., Mexican-American, Puerto Rican, Cuban, and others of Latin American origin). Other ethnic groups, such as Oriental and American Indian, were not included, because of their small sample size.

Profiles of the three ethnic groups are shown in Figure 2, and means and standard deviations are given in appendix A, table A.2. Generally speaking, the base-year and first followup profiles were similar for the respective subgroups. Additionally, the profiles for blacks and Hispanics were similar to one another and different from the white majority profile.

For the base-year and first followup relative to the total group means, blacks were high external on locus of control, and work and community goals were rated as very important. Similarly, Hispanics were external and showed moderately high interest in work and community goals. Because of the preponderance of whites in the total sample, white means did not show large magnitude deviations from the total means.

Differences among the ethnic groups were readily evident on all but the self-esteem measure. Self-esteem tended to be slightly higher for blacks than for whites or Hispanics on the base-year measure; however, the difference was rather small and virtually disappeared at the time of the first followup. While "no difference" is usually not very intersting, attitudinal research on ethnic group self-perception in previous decades showed that minority groups tended to derogate themselves relative to the white majority. Consequently, the data clearly documented improved self-esteem for blacks and Hispanics, confirming similar results from ore recent studies.[10]

On locus of control, whites were more internal than either blacks or Hispanics for both the base-year and first followup. This difference on locus of control is well supported by previous research on ethnic differences.[11] To the extent that locus of control is based on experiencing control (or lack of it) over the environment, it would appear that blacks and Hispanics tended to see themselves as victims of circumstances beyond their control, a belief not yet modified by post-high school experiences.

Fairly substantial ethnic group differences were evident on life-goal ratings, especially for community orientation. Community-related life goals were most important to blacks and least important to whites, with a base-year difference of .62 units and a first followup differences of .63 units. Hispanics, while between blacks and whites on community orientation, were closer to the mean for blacks. Similar, but smaller, ethnic group differences existed on work orientation. Blacks rated work as being more important than did whites, Hispanics were in-between.

The high evaluation of community and work life goals by blacks and, to a slightly lesser extent, by Hispanics may well reflect a desire to improve their overall socioeconomic status both as individuals (hence the endorsement of the importance of work) and as members of minority group communities (hence the interest of community involvement).

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[8] V. J. Crandall, W. Katkovsky, and V. J. Crandall.

[9] J. B. Rotter.

[10] J. G. Bachman and P. M. O'Malley.

[11] E. S. Battle and J. B. Rotter; R. D. Franklin; T. D. Graves.

19

Figure 1.--Psychological profiles for sex groups

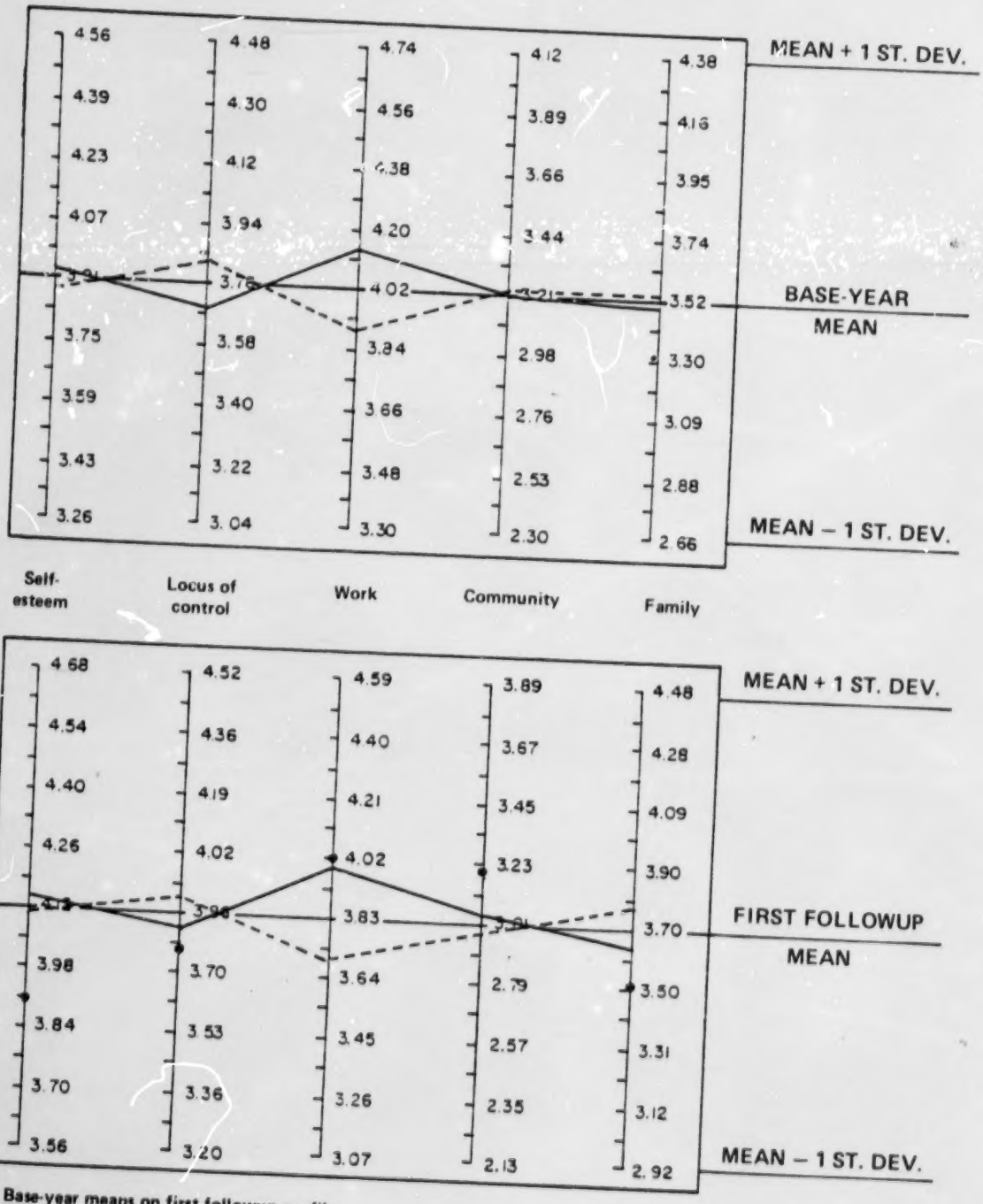

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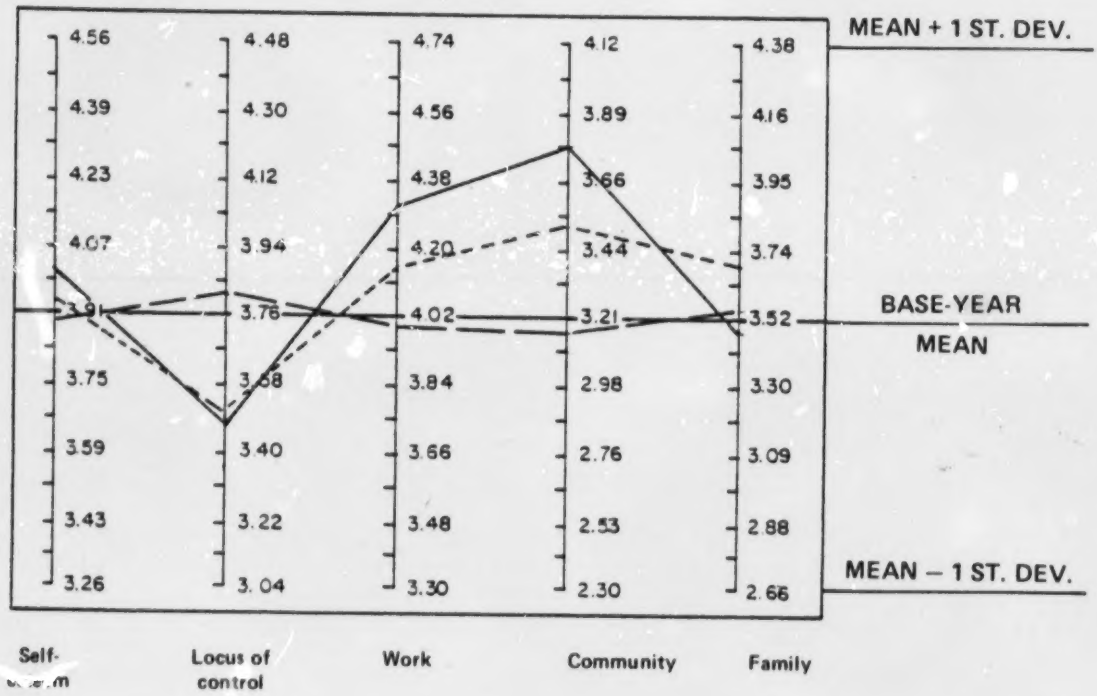
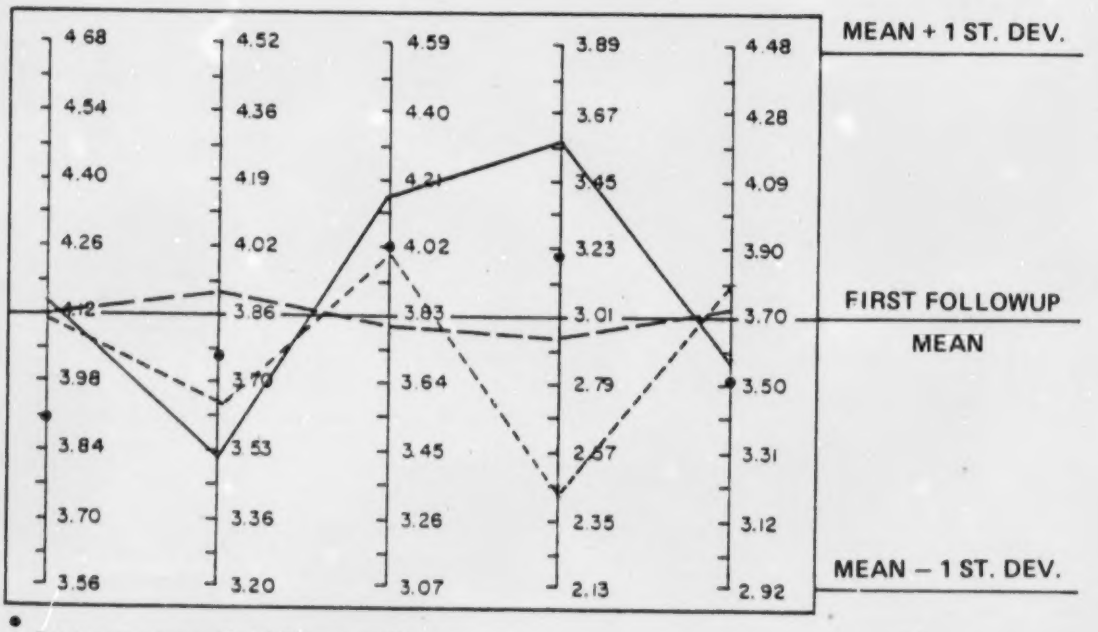
Figure 2.–Psychological profiles for ethnic groups





• Base-year means on first followup profile

——— Blacks

— — Whites

- - - - - Hispanics

Hispanics rated family-life goals more highly than did blacks. The high mean for Hispanics on family orientation probably reflected strong religious and cultural traditions apparently not shared by blacks. Research has often indicated that black males do not consider the nuclear family extremely important; perhaps a more detailed analysis of black males versus black females would be useful.

E. Profiles of Socioeconomic Groups

Three socioeconomic (SES) classifications (low, middle, and high) are analyzed in this report, based upon a composite score involving five components: father's education, mother's education, parental income, father's occupation, and a household items index. These components were first subjected to factor analysis, which revealed a common factor with approximately equal weights for each of the five components. Missing components were imputed by using the appropriate component mean of the subpopulation of which the respondent was a member. The subpopulations were defined by cross-classifying race, high school program, and aptitude. An SES score was computed by averaging the available standardized components. However, in order for an SES score to be computed, the respondent had to have at least two nonimputed components available. The continuous SES score was then assigned to a high, middle, or low category depending on whether it was in the upper quartile, middle two quartiles, or lower quartile. The cutting points for the quartiles were based upon the population SES distribution, estimated by using sample weights. There were 656 individuals who could not be classified by SES; and these were excluded from the analyses.

Figure 3 gives the profiles of the three socioeconomic groups on the five psychological measures. The means and standard deviations of the SES groups on the five psychological attributes are presented in appendix A, table A.3. There were only minor differences between the base-year and first followup profiles, with the base-year and first followup profiles showing that the high SES group had moderately high internal locus of control while the low SES group was external on locus of control. The middle SES group did not differ from the total group on any of the dimensions.

The subgroup means on locus of control showed internality associated with high SES status, externality with low SES persons. Slightly larger differences existed between low and middle SES groups (.22 for base-year and .21 for first followup) than between middle and high SES groups (.16 for base-year and .10 for first followup). The correlation between locus of control and SES has been well documented.[12]

The only large life goal differences were on the community scale: the low SES group considered community goals very important and differed more from the middle SES group than the latter differed from the high SES group. Since blacks and Hispanics were more preponderant in the low SES group, these differences may reflect the greater interest among blacks and Hispanics in improving their overall socioeconomic status.

F. Ability Group Profiles

Sample members were classified into three ability categories based upon the ability index derived from four test scores: Vocabulary, Reading, Letter Groups (a measure of inductive reasoning), and Mathematics. Factor analysis results of the base-year test scores indicated that a single composite score measuring general ability (by forming an equally weighted linear composite of these tests) sufficiently accounted for subtest variance and covariance. Each test was standardized with a mean of 50 and a standard deviation of 10 before being used in the composite. This continuous ability score was then classified into a high, middle, or low category depending on whether the score was in the upper quartile, middle two quartiles, or lower quartile, based upon a weighted estimate of an assumed normal distribution of ability. About 29 percent of sample members did not have test scores and were not included in the analyses.

Profiles for the three ability groups are presented in Figure 4. The base-year and first followup ability group profiles are very similar. In addition, the ability group profiles resemble those of the SES groups (figure 3) with high ability corresponding to high SES, middle ability to middle SES, and low ability to low SES. The major difference between the ability and SES profiles were the greater differences among the ability groups on locus of control and work orientation.

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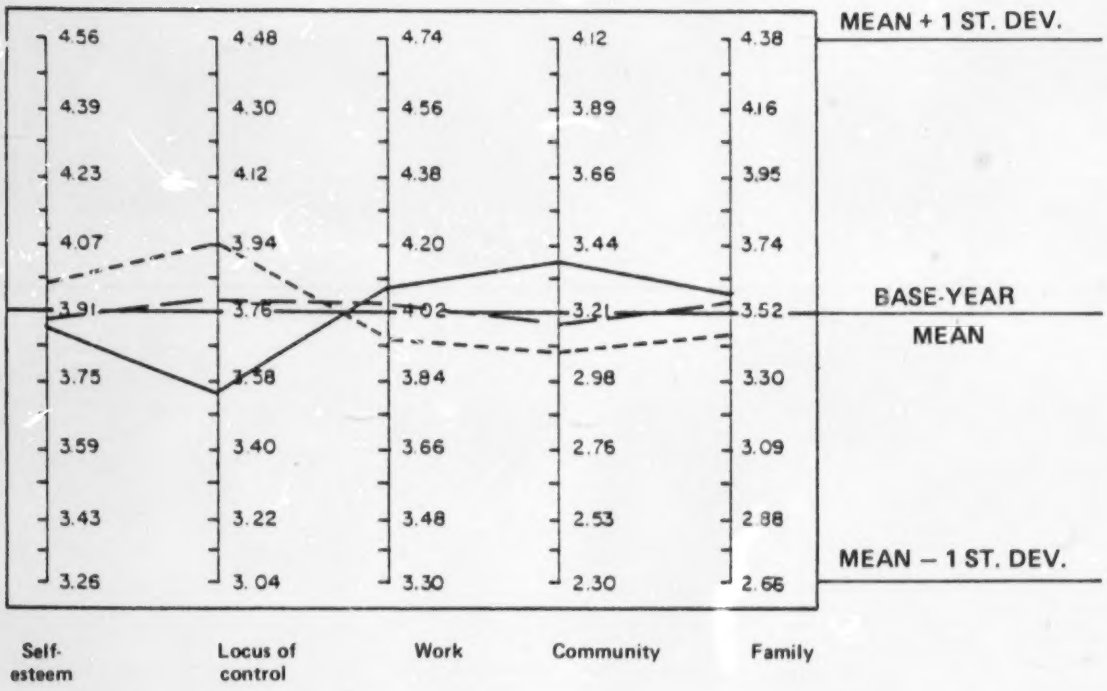
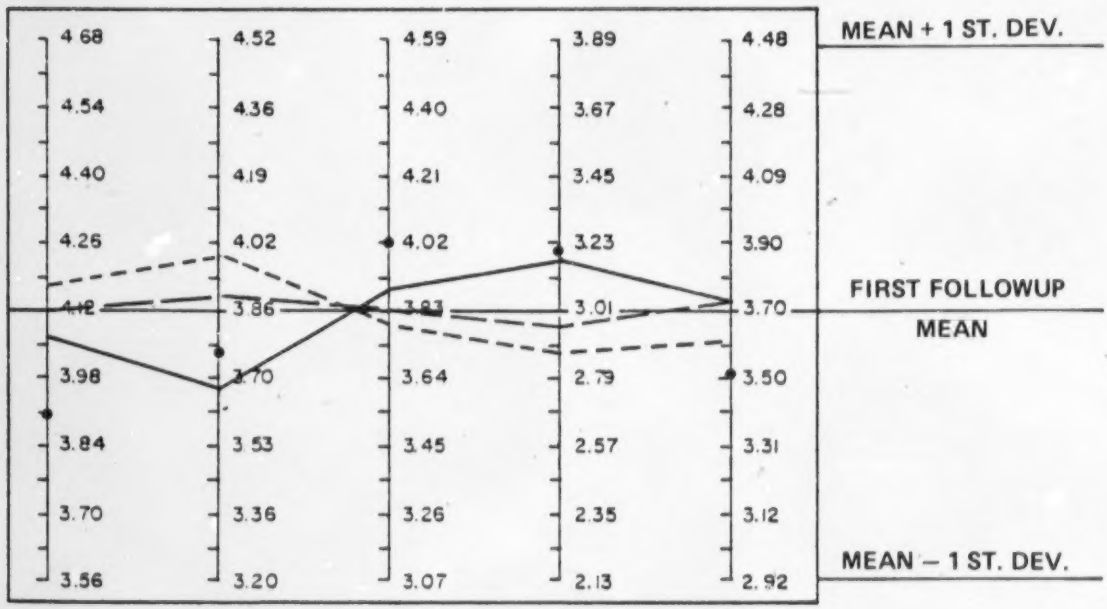
[12] R. D. Franklin; E. S. Battle and J. B. Rotter.

Figure 3.--Psychological profiles for SES groups





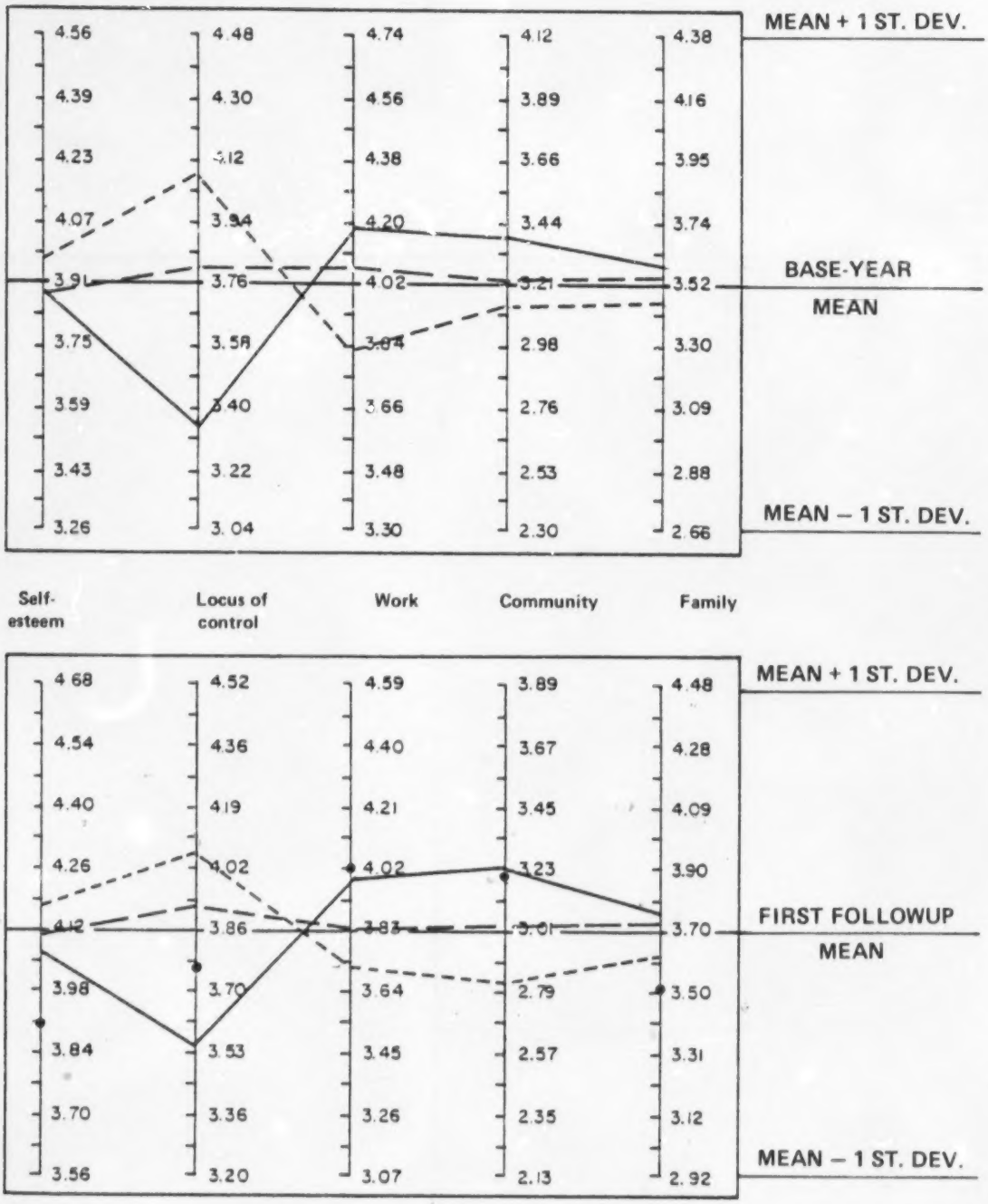
• Base-year means on first followup profile

——— Low SES

— — Middle SES

----- High SES

Figure 4.--Psychological profiles for ability groups



• Base-year means on first followup profile

——— Low ability

— — — Middle ability

------ High ability

The high-ability group during the base-year and first followup was typified by high internal locus of control and low work and community orientations. The low-ability group profile was the reverse; the low-ability group was typified by an external locus of control but high work and community life goals. The middle-ability group profile was fairly indistinct from the total group profile: there were no major profile changes from the base-year to first followup.

The means and standard deviations of the five psychological measures for the ability groups are presented in appendix A, table A.4. Very small differences existed among the SES groups on self-esteem and family orientation; larger differences were evident for work and community orientation, and surprisingly large differences existed on the locus-of-control measure. Although the magnitudes of the differences among ability groups were not quite the same as those among the SES groups, the patterning was generally similar.

The locus-of-control measure showed that the high-ability group was more internal than the middle-ability group, and the middle-ability group was markedly more internal than the low-ability group. The differences tended to shrink at the time of the first followup, apparently because of the large change (.19 units) for the low-ability group as compared to the middle-ability group change of .10 units and zero change for the high-ability group. Previous research relating ability to locus of control has been fairly limited and has shown mixed results. Studies done on high-ability persons have shown virtually no relationship between ability and locus of control[13] while studies on lower-ability persons have demonstrated modest correlations.[14] The results presented in this report indicate a probable nonlinear relationship showing a stronger correlation for the low-ability range and a weaker correlation in the high-ability range.

All three life goals show similar patterns of differences among the ability groups and, additionally, the differences resemble those documented for the SES groups. There is, however, a larger difference among ability groups in work than there is among the SES groups. This finding seems somewhat perplexing and warrants further evaluation. Differences among ability groups on community orientation are quite similar to those among SES groups. If the difference in community interest cuts across ethnic and SES groups, this could indicate that high-ability persons are removing themselves from community involvement and improvement—which could eventually weaken community efforts at improvement. This is true, of course, only if these psychological measurements correlated with behavior in the expected manner.

G. High School Program Profiles

Sample members were classified into three groups (general, academic, and vocational-technical) according to their self-reported high school curriculum programs. Profiles for the high school program groups are shown in figure 5, and the means and standard deviations are presented in table A.5 in appendix A. There are only minor differences in the profiles of the general and vocational-technical groups. Additionally, for both the base-year and the first followup, the only differences from the total group means for all three high school programs were on locus of control. Thus, the high school program profiles may be typified as showing average self-esteem and average interest in work, community, and family life goals; however, academic students were internal, but general and vocational students were external. The locus-of-control profile characteristic, however, may be more related to ability than to high school program per se since the patterning of means and changes was similar to that expected from the ability and SES groups. Consequently, rather than reflecting indifferences mediated by high school program, the differences more probably reflected the ability, SES, and perhaps ethnic-group differences associated with the various high school program populations.

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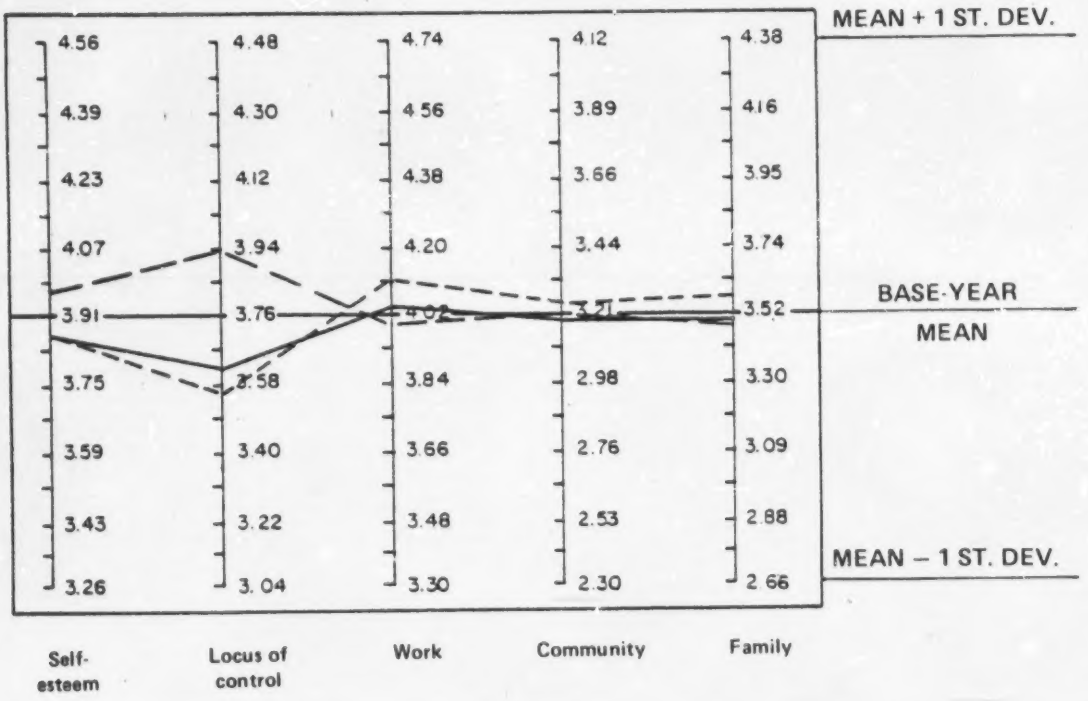
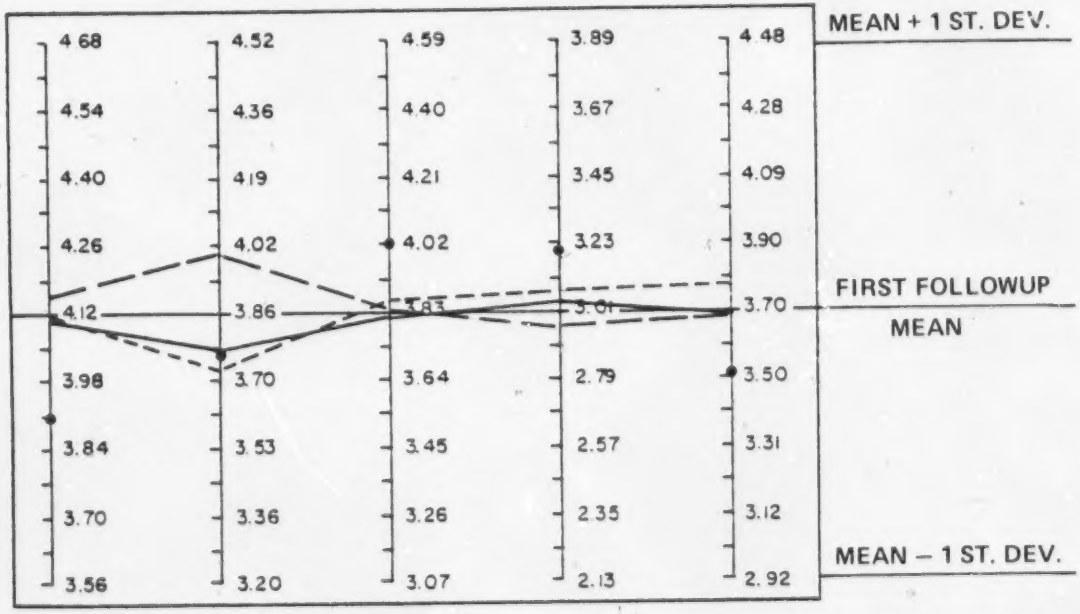
[13] J. B. Rotter.

[14] I. Bialer, V. J. Crandall, W. Katkovsky, and A. Preston.

Figure 5.--Psychological profiles for high school programs





* Base-year means on first followup profile

——— General
— — Academic
- - - - - Vocational

V. PLANS AND ACTIVITIES: ANALYSES AND RESULTS

The approach to the analysis of planning, activity, and major transition groups was generally identical with those undertaken for the major classification groups. Thus, weighted means and standard deviations were computed for each of the five scales (self-esteem, locus of control, work, community and family goals) for the various planning, activity, and transition subgroups. Profiles were generated in the same manner (see section IV. B.) and similar constraints were placed on differences deemed large enough to warrant discussion.

The differences between this section and the preceding section are that for the high school plan groups only the base-year profile was discussed and the entire base-year sample was used for this purpose. For the transition groups, only those subgroups with a sample size of 100 or more were analyzed and on this basis (sample size) were termed major transition groups. Further details on these groups are provided below.

The basic purpose of separating these analyses from the preceding analyses on major classification groups was that the groups discussed in this section were formed by personal or dynamic variables associated with changes in state, whereas the preceding groups were static, i.e., a person's sex, ethnicity, etc., do not change.

A. Profiles of Various Plan Groups

In the base-year survey, all sample members were asked to indicate one activity that most likely would take the largest share of their of time in the year after leaving high school. Based on their responses, the sample members were classified into six groups described as follows:

1. Study Group

Here are included respondents indicating one of the following as their major activity: taking vocational or technical courses at a trade or business school full time or part time; taking *academic* courses at a junior or community college full time or part time; taking *technical* or *vocational* subjects at a junior or community college full time or part time; and attending a 4-year college or university full time or part time.

2. Work Group

Respondents who indicated either working full time or working part time, or entering an apprenticeship or on-the-job training program, but not attending school or college.

3. Military

Respondents who indicated going into regular military service or service academy.

4. Homemaker

Respondents who indicated being a full-time homemaker.

5. Other

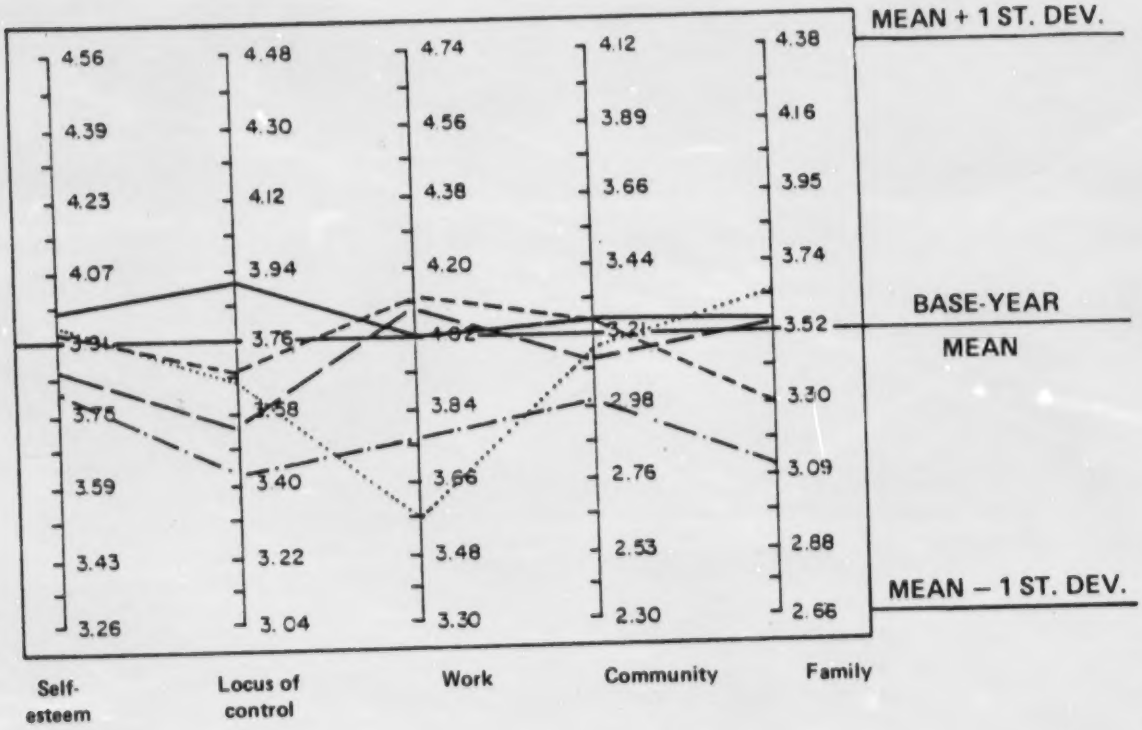
Respondents who indicated other activities such as traveling, taking a break, or no plans.

6. Unclassifiables

Respondents who did not give any information, and were not included in these analyses.

Figure 6 gives the base-year profiles of the five major plan groups. The profiles show large differences from one another and from the total group means. The study group, which is the largest subgroup, can be typified as average on every dimension except locus of control on which they were internal. The second largest subgroup was the plan-to-work group which was external on locus of control and slightly high on the work interest scale (as would be anticipated). The group planning to be in the military was slightly external and showed a moderately

Figure 6.--Psychological profiles for plan groups



high work interest but low family interest (see below for a possible confound for the military group on family interest). The homemaker group was slightly external and showed a very low work orientation and a moderately high family orientation. The "other" group, comprised of individuals who indicated travel interests, taking a break, or no definite plans, was low on self-esteem, very external on locus of control and showed no definite life-goal interests in comparison with the total group means. In fact, this group had the lowest means on every variable except for homemakers, who were lower on work interest.

Table A.6 in appendix A gives means and standard deviations for the five planning groups. Differences on self-esteem were fairly small, but there was some differentation of those planning to study (highest self-esteem), to enter the military, or to be homemakers from those who plan to work or those who have no definite plans. The low self-esteem for those planning to work might possibly reflect self-awareness of ability limitations or a self-derogation accompanying low socioeconomic status and low evaluation of their probable job-related social status. The "other" group, which had the lowest self-esteem, may lack self-esteem because of an indefinite future or, equally likely, may not be making plans because of low self-esteem. To the extent that externality on locus of control is correlated with anxiety,[15] the low self-esteem and high externality for the "other" group might indicate a more causative role of self-esteem in dictating the lack of plans for this group.

There were moderately large differences on the locus-of-control variable; however, the previously mentioned relationships of locus of control with ability and socioeconomic status could account for a large share of the observed differences. In particular, the planning-to-study group is most likely comprised of high-ability and high-SES persons; thus, their high internal stance on locus of control seems quite reasonable. The remaining groups' means were all external in comparison to the total group average; however, the miltary and homemaker groups were only moderately external while the planning-to-work group was quite external and the "other" group was highly external.

Among-group differences were also evident on the life-goal measures, and these generally corresponded to expectations. Those planning on work or the military rated work as very important while homemakers placed little interest on this composite. The "other" group was also not highly oriented toward work. The community scale received the highest ratings from those planning to study or enter the military, and the lowest ratings were given by the "other" sample. The surprising finding here was that the planning-to-work group did not rate community as being very important, yet this group would probably benefit from community involvement and improvement. However, this finding corresponded to interests during the base-year only. As expected, family orientation was given the highest rating by the homemaker planning group, and the lowest by the military and "other" planning groups. However, there is the possibility of a slight confound, since two of the family orientation items involved staying near home. Clearly, people planning to be in the military or to travel cannot simultaneously be at home. There is, however, the possibility that desiring to get away from the home or home-community could play a causative role in entering the military or planning to travel. The overall low interest in all three life goals coupled with high externality and low self-esteem for the other group could indicate that this is a potential problem group.

B. Profiles of Current Activity State Groups

In the first followup survey, sample members were asked to indicate what they were doing at the time the questionnaire was filled out. Based on their responses, seven mutually exclusive groups were classified. These groups were:

1. Study-Only

This group included respondents taking academic courses at a 2- or 4-year college, or taking vocational or technical courses at any kind of school or college, *and not working* for pay at a full-time or part-time job.

2. Work-Only

This group included respondents working for pay at a full-time or part-time job, *and not studying* at any kind of school or college.

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[15] E. C. Butterfield.

3. Study-plus-Work

This group included respondents working and also taking academic or vocational courses.

4. Military

This group included respondents on active duty in the Armed Forces and not in any other activities.

5. Homemaker

This group included respondents who were homemakers only, but not engaged in any other activities.

6. Look-for-Work

This group included respondents looking for work only, and not engaged in any other activities.

7. Other

This group included respondents who indicated activities other than those listed above.

Profiles for the seven current activity state groups have been segregated into two clusters for ease of presentation. Figure 7a presents the base-year and first followup profiles for the three major activity groups (study-only, work-only, study-plus-work) and, for contrast reasons, the look-for-work activity group. Figure 7b presents the base-year and first followup profiles for the military, homemaker, and "other" groups.

With only minor differences apparent, the study-only and study-plus-work groups had identical profiles with one clear deviation from the total group means. During the base-year, these two groups were internal on locus of control, and this internal stance was maintained during the first followup but at a slightly lower level. During the base-year, the work-only and look-for-work groups were also fairly similar, with both groups being fairly external (especially the look-for-work group) on locus of control. The base-year profile for the look-for-work group also shows low interest on the family orientation scale. At the time of the first followup, however, the profiles for these two groups are quite different. The work-only group had average self-esteem and was slightly external while the look-for-work group showed low self-esteem and extreme externality. This group showed rating for community and work similar to the work-only group, but they gave family-life goals a slightly below average importance rating.

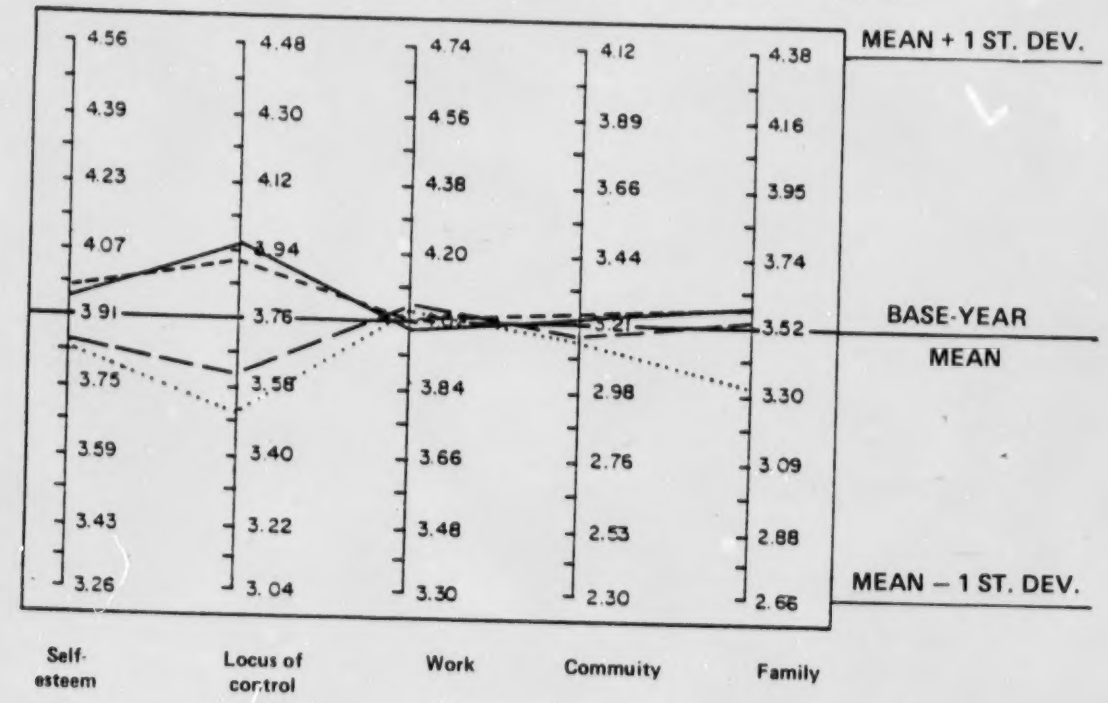
The military group during the base-year was slightly external, and gave work-life goals a high rating but family-life goals a low rating. At the time of the first followup, the profile had shifted somewhat: the military group was slightly high on self-esteem and average on locus of control. While work goals were still important and family goals were not, community orientation now appeared extremely important. One could speculate from these data that being in the military plays a positive role in improving self-esteem, but the increased interest in community involvement could be due to being away from the home community, as well as to possible leadership experiences.

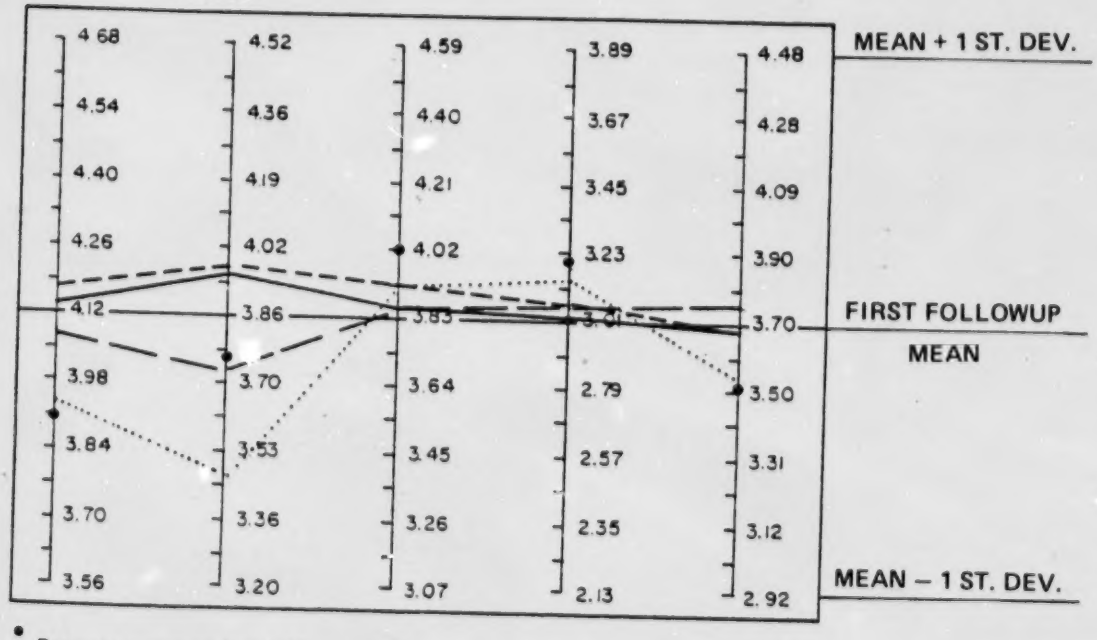
During the base-year, homemakers could be typified by externality and lack of interest in work-life goals. On the first followup, however, deviations from the total group means were greater on three of the five variables. The homemakers, when this activity had been realized, were somewhat more external, extremely uninterested in work-life goals and, as expected, oriented toward the family. The variable of most interest was the less-than-average increase on locus of control. Homemaking should normally provide experiences in mastering the environment (similar to the work-only or military groups); however, the homemaker role may not have provided sufficient independence to allow for increased internality.

The "other" group during the base-year showed below-average interest in work and family-life goals, but was otherwise undifferentiable from the group average. During the first followup, this group appeared slightly external and showed slightly below-average interest on all three life goals. In contrast, the current "other" activities group bore little resemblance, in terms of the extreme deviations from the average, to the base-year "other" activities group.

Means and standard deviations for the seven current activity groups are given in appendix A, table A.7. Fairly large among-group differences on locus of control and work orientation were evident during the base-year; however, during the first followup there were large differences among groups on all five variables, indicating differential rates of change for the various activity groups.

Figure 7a.--Psychological profiles for study and work current activity groups





• Base-year means on first followup profile

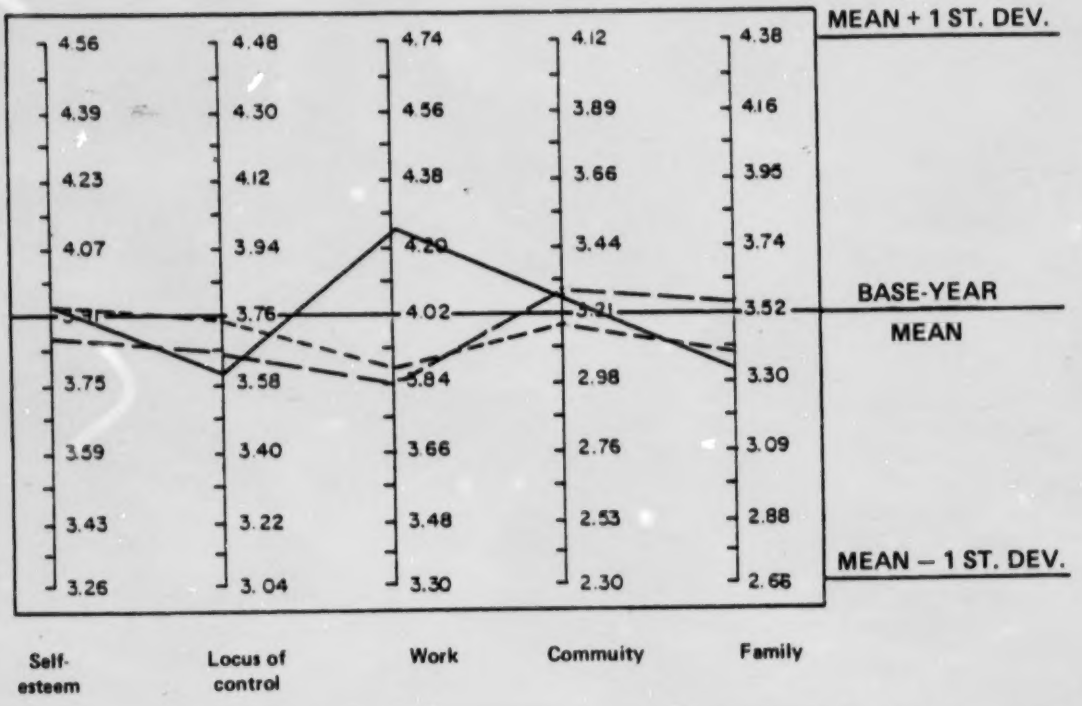
——— Study only

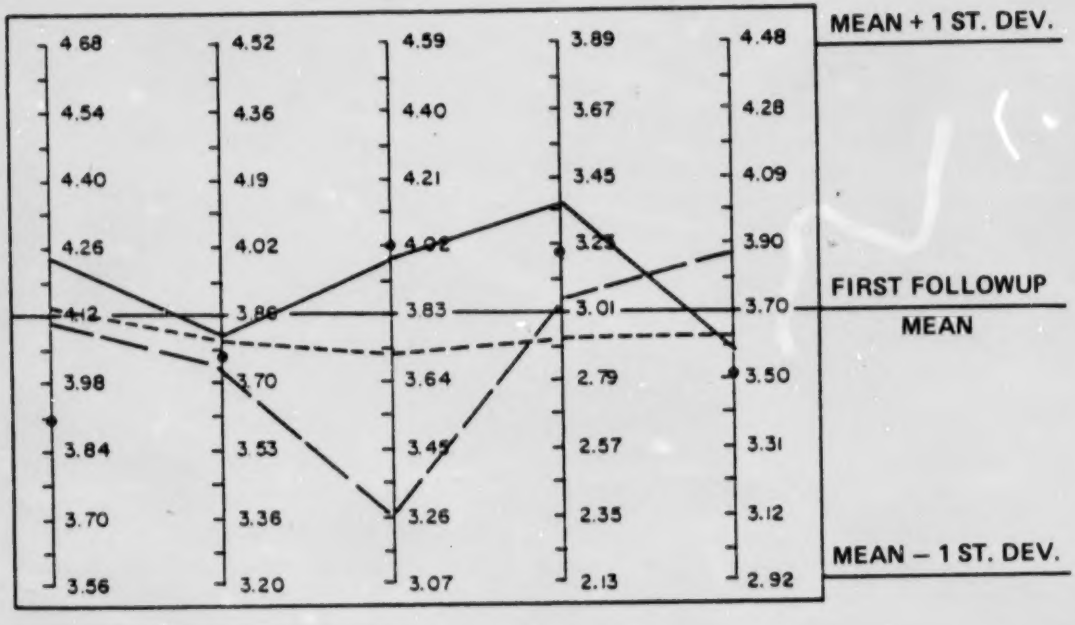
— — — Work only

– – – – Study-plus-work

..... Look for work only

Figure 7b.–Psychological profiles for miscellaneous current activity groups





• Base-year means on first followup profile

——— Military

— — Homemaker only

------ Other

Self-esteem scores, during the base-year, were fairly homogeneous. At the time of the first followup, however, self-esteem differentiated the military group (which had the greatest change from the study-only), "other", homemaker-only, and work-only groups, all of which had average self-esteem and equal changes from the base-year. At the time of the first followup, the study-plus-work group was also slightly above average on self-esteem. On the first followup, the look-for-work group had the lowest self-esteem and showed the least change from the base-year. At the other extreme, the look-for-work group had the lowest self-esteem, but on the base-year they were also the lowest. Thus, there is a possibility that base-year self-esteem was a cause of their not obtaining work (i.e., they did not try to obtain work), or it reflected a realization that, in comparison with their peers, they lacked social and job-related skills. The very small change for the look-for-work group in self-esteem from the base-year to first followup actually represented a relative loss in self-esteem, apparently attributable to the current activity state. That is, persons who seek work but cannot find it would be quite likely to suffer some loss of self-esteem.[16]

Among-group differences on locus of control were similar in pattern to those on self-esteem but were generally larger. The two study groups (study-only and study-plus-work) were the most internal for both the base-year and first followup. Since the high-ability and high SES groups were also quite internal, this result was not surprising. During the base-year, the "other," homemaker, work, and military groups were similar, but the latter two fell below the total group mean. At the time of the first followup, these groups all clustered together, but the military and the work-only groups showed relatively large increases in internality. These were the two largest increments and probably represented the effect of perceiving greater control over the environment as a function of the work and military experiences. The look-for-work group had the most external score during both the base-year and first followup. This group also showed an absolute decrease on locus of control (−.04 units), which runs counter to the total group mean change. In fact, on the first followup this group was more than one-half of a standard deviation below average. As was the case with self-esteem for this group, locus of control during the base-year could enter in as a causal factor; but during the first followup, it appeared to be a resultant of not being able to obtain work.

The activity groups during the base-year fell into three clusters on the work-orientation scale. The military was the highest and was distinctly above the work, look-for-work, study-plus-work, and study-only groups. These four groups, in turn, were above the "other" and homemaker groups. On the first followup, the military group clustered more closely with the work and study groups. These five activity groups were somewhat above the "other" group; however, the homemaker-only group was extremely different from the other activity groups. In terms of change from the base-year to first followup, the homemaker showed a decrease of −.58 units compared with an average change of −.17 units. The homemakers were initially (base-year) not work oriented; however, the first followup mean showed an extremely low endorsement of this life goal.

The community orientation means were very homogeneous during the base-year; however, on the first followup the groups were much more distinct, the military group showing the greatest interest in the community life goal and quite different from the look-for-work group which ranked second. The study groups, work-only group, and homemakers were clustered together and appeared distinct from the "other" group. Base-year to first followup changes were also quite variable. The overall trend was a decrease; however, the military group showed an absolute increase and the look-for-work means remained constant. On the other extreme, the "other" group showed a larger-than-average decrease. To the extent that the military and look-for-work groups comprised blacks and Hispanics, the high community interest was not surprising. By comparison (table A.2), the black mean on community life goals was 3.57, and the mean for Hispanics, 3.41. Consequently, a more detailed analysis would seem warranted before offering any interpretation on the military and look-for-work groups.

The family life-goal scale during the base-year had two clusters of groups: the study and work groups and homemakers were all higher than the military, look-for-work, and "other" groups. The maximum group difference changed a little on the first followup, and the groups were clustered quite differently. As anticipated, homemakers showed the greatest interest (and increase over the base-year) and were distinct from the next nearest group (work-only). The work-only and two study groups were fairly similar and clustered around the total group average. The least interest in family goals was shown by the look-for-work group, with the military and "other" groups falling between the look-for-work and the study groups. As on the community factor, the ethnic composition of the look-for-work and military groups must be considered before interpreting their low family interest. Also, as was stated for the plan groups, the items of the family scale emphasized proximity to home, which could also account for the low family interest shown by the military and "other" groups.

[16] J. D. Bachman and P. M. O'Malley.

C. Profiles of Major Transition Groups

Of the analyses undertaken for this report, those described in this section are likely to shed the most light on changes in psychological development and adjustment associated with post-high school experiences and activities. The transition subgroups link high school plans to subsequent activities one-half year and one and one-half years after high school. Thus, some measure of plan fulfillment, change, or failure can be indexed.

In accord with published reports[17], progress of adolescents in mastering the developmental tasks should be associated with positive psychological changes. Generally, increases in self-esteem and internality can be expected to accompany plan fulfillment or achievement of satisfactory goals, and absolute or relative decreases in self-esteem and internality could be expected to accompany failure.[18]

Currently, no adequate basis exists for predicting changes in life goals; differential experiences with work and marriage can, however, be expected to result in changes in the ratings of importance given to work, community and family life goals. For example, as a woman adopts the role of homemaker, she could be expected to rate work as being of lesser importance and family as being of greater importance. However, as previously stated, this report is oriented toward description and induction rather than hypothesis testing and deduction, and, consequently, the specification of anticipated changes associated with particular transition sequences has not been undertaken.

This section presents profiles of major transition groups, which were defined jointly by planning states in the spring of 1972, activity states in October 1972, and activity states at the time the first followup survey took place. The previous definitions of plans and activities are applicable here. A transition group is indicated by the following format:

PLANS (SPRING 1972) → ACTIVITY (OCT. 1972) → ACTIVITY (OCT. 1973)

An example of a transition sequence is:

STUDY → STUDY-ONLY → WORK-ONLY

This says that in the spring of 1972 the person planned to study in the subsequent year(s), and actually was studying in October 1972; but the person was working (but not studying) when the first followup survey was made.

The groups included in the analyses had initially planned to study or work and had a sample size greater than 100. A group that had fewer than 100 members was not included because the sample size is considered too small for stable estimates.

Because of the large number of groups involved in the transition analyses, the profiles have been clustered on two facets: (1) on planning states into study and work plans (Spring 1972); and (2) within study plans, by October '72 activities into study-only (figure 8a). Within study plans, profiles have been clustered into transition groups involving some study activity (study-only or study-plus-work (figure 8b), and work-only (figure 8c). Within work plans, they have been clustered into transtion groups involving no study activities (figure 9a) and into transition groups involving some study activity (study-only or study-plus-work) (figure 9b).

1. Profiles of Study Plan Groups

The profiles (figure 8a) of the study → study-only → study-only and study → study-only → study-plus-work groups were virtually identical during the base year and first followup, with both groups showing moderately high internality. The study → study-only → work-only group, by contrast, is average on locus of control during the base-year and showed less than average community interest on the first followup.

During the base-year (figure 8b), the study → work-only → study-plus-work group showed slightly elevated self-esteem, moderate internality, and a high work orientation. Both the study → work-only → study-only and the study → work-only → work-only groups were indistinguishable from the group average during the base-year and the first followup.

The study → study-plus-work transition groups had profiles (figure 8c) which showed little change from base-year to first followup and were moderately high on internality. The study → study-plus-work → work-only group was generally indistinct from the total group profile.

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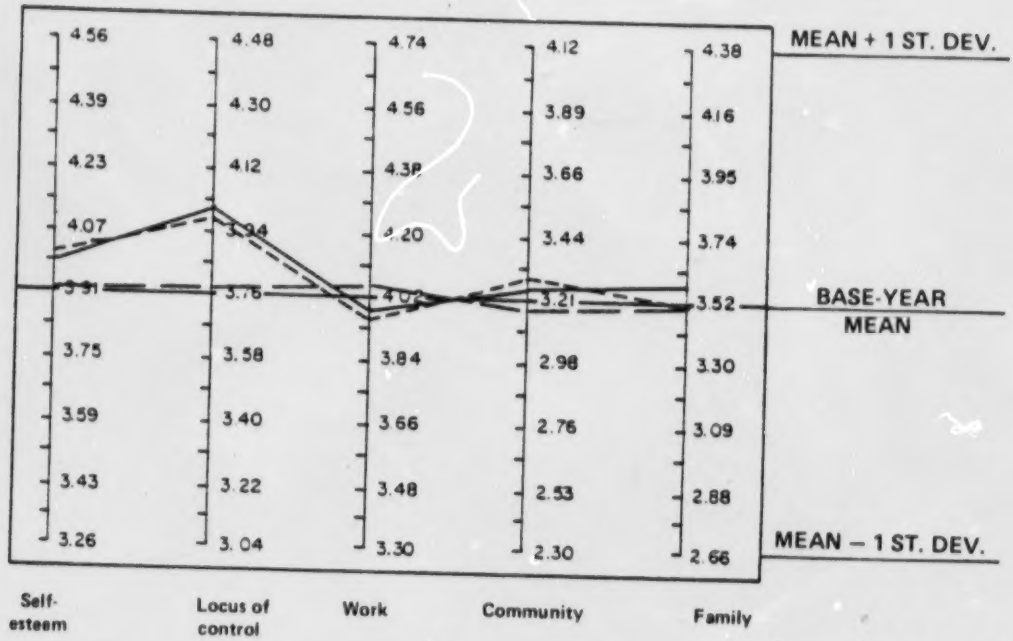
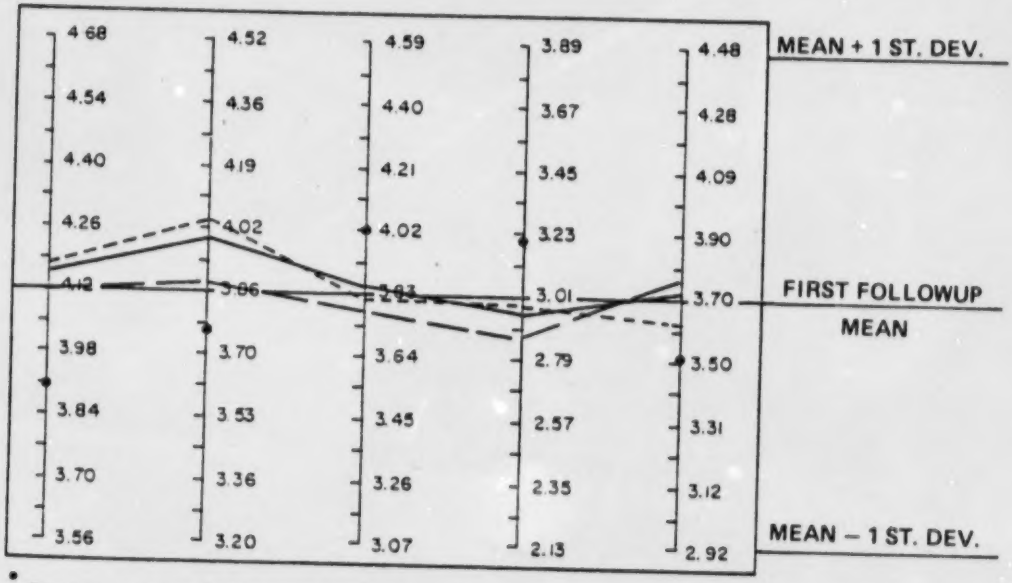
[17] R. J. Havighurst.

[18] M. Rosenberg; H. M. Lefcourt; J. B. Bachman and P. M. O'Malley.

Figure 8a.—Psychological profiles for "study → study only →" transition groups





• Base-year means on first followup profile

——— Study→study only→study only

— — — Study→study only→work only

- - - - - Study→study only→study-plus-work

Figure 8b.–Psychological profiles for "study → work only →" transition groups

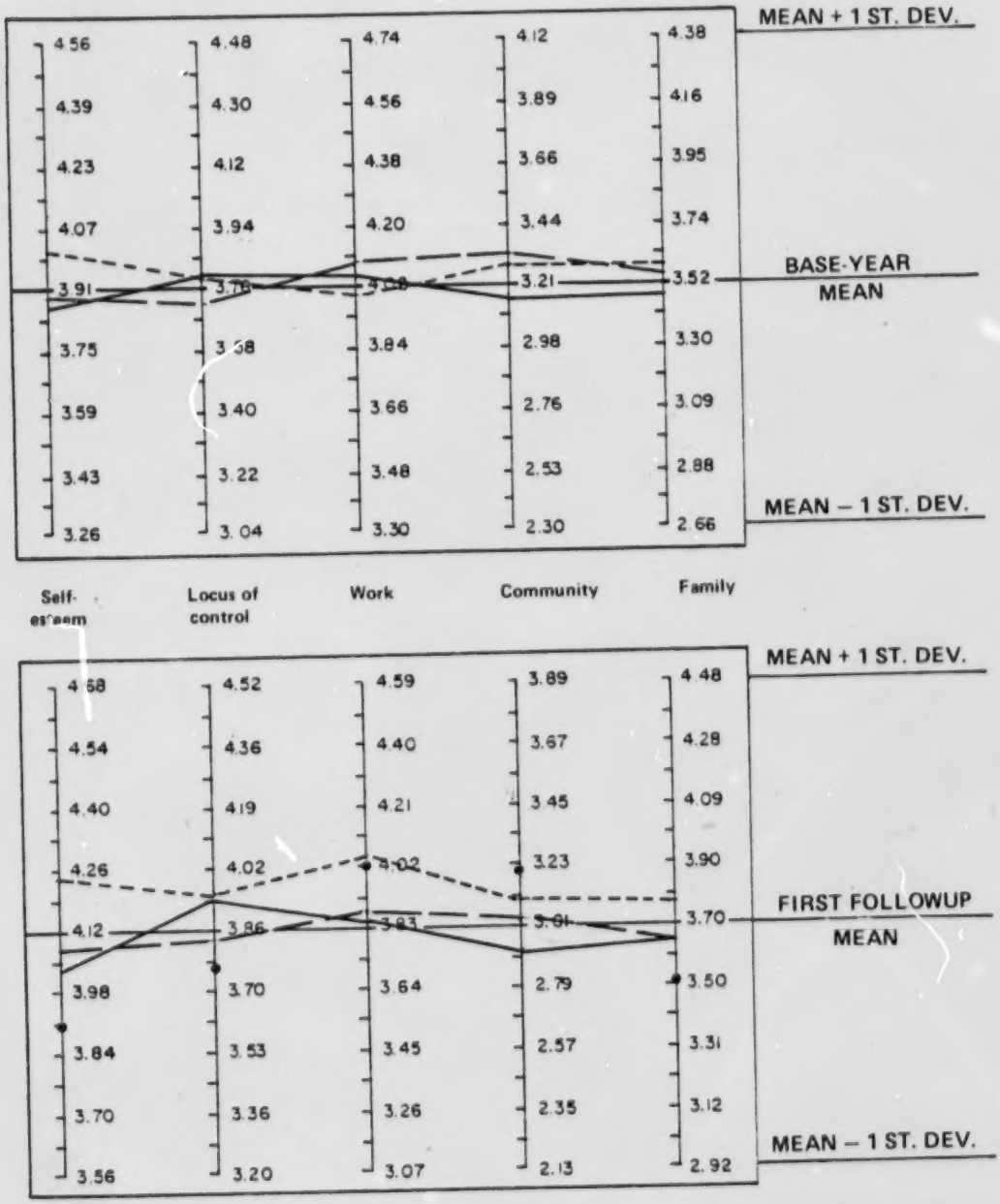


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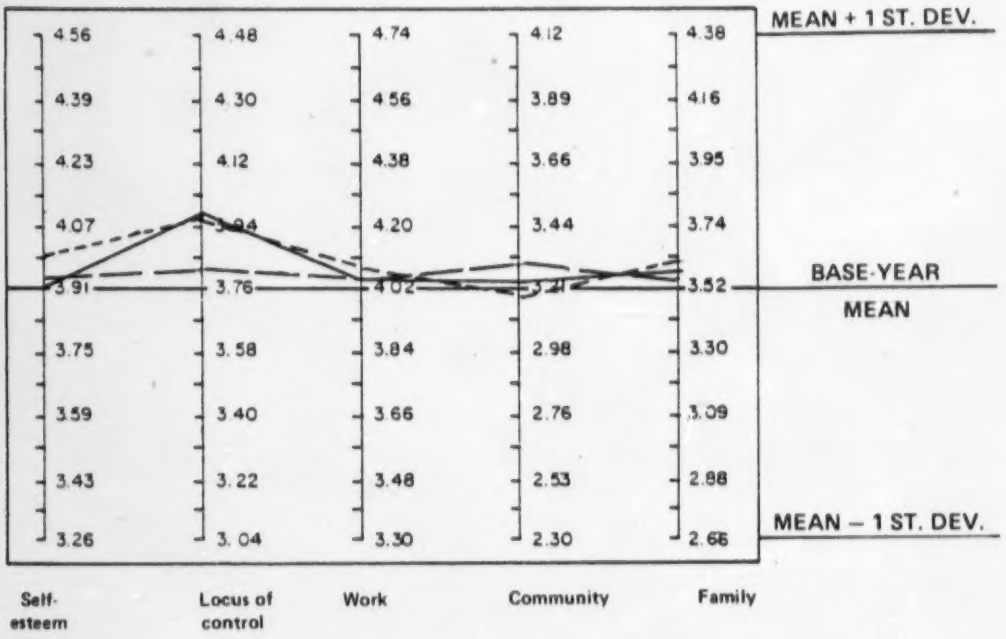
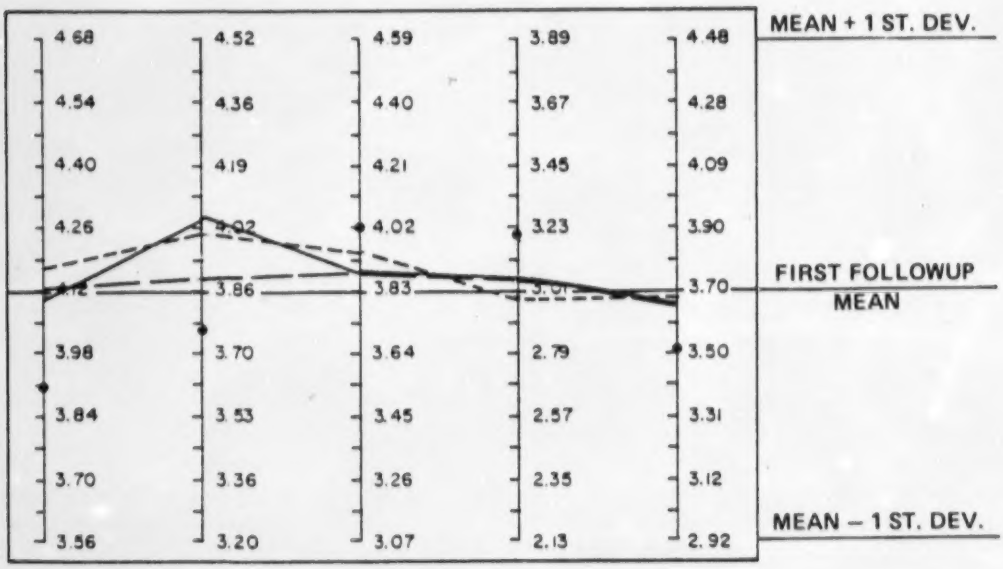
Figure 8c.—Psychological profiles for "study → study-plus-work →" transition groups





Base-year means on first followup profile

——— Study → study-plus-work → study only

— — Study → study-plus-work → work only

----- Study → study-plus-work → study-plus-work

The study plan groups discussed in detail above showed some systematic similarities and differences when the October 1972 and first followup activities were blocked according to those transition sequences involving study activities (study-only or study-plus-work) versus those involving a work-only activity (either during October of 1972 or on the first followup). The study activity groups were all marked by slightly high internality, while the work-only groups were generally average on locus of control. The only exception was the first followup profile for the study → work-only → study-plus-work group which had above-average internality. This group was also above average on self-esteem and had a high work orientation.

2. Profiles of Work Plan Groups

Unlike the study plan groups discussed above, the work plan groups (figure 9a) showed a great deal of profile variation among themselves and relative to the total group means. The work → work-only → work-only group showed little change in profile from the base-year to the first followup with both profiles showing moderate externality. During the base-year the two groups which were later looking for work were extremely similar to one another. Both had slightly low self-esteem and were very external. At the time of the first followup these two groups were somewhat different. The work → look-for-work → work group was low on self-esteem, external (but less so than during the base-year), and considered community involvement important. The group looking for work at the time of the first followup had a profile different from the group looking for work in October 1972 and from its own base-year profile. This group (work → work-only → look-for-work) had low self-esteem.

The remaining nonstudy transition group was the work → work-only → homemaker group. During the base-year, the homemaker group was low on self-esteem and manifested slightly less-than-average work interests and greater-than-average family interests. At the time of the first followup, however, self-esteem was average, but this group had become relatively more external, less interested in community goals, and was almost a full standard deviation below the total group mean on work interests. The gain in self-esteem was quite marked but the relative loss in internality was problematic. The large decrease in work interest seemed to indicate at least temporary plans to remain out of the work force.

The profiles for the work plan groups which engaged in some study activity (study-only or study-plus-work) are shown in figure 9b. No two of these profiles were very similar during either the base-year or first followup.

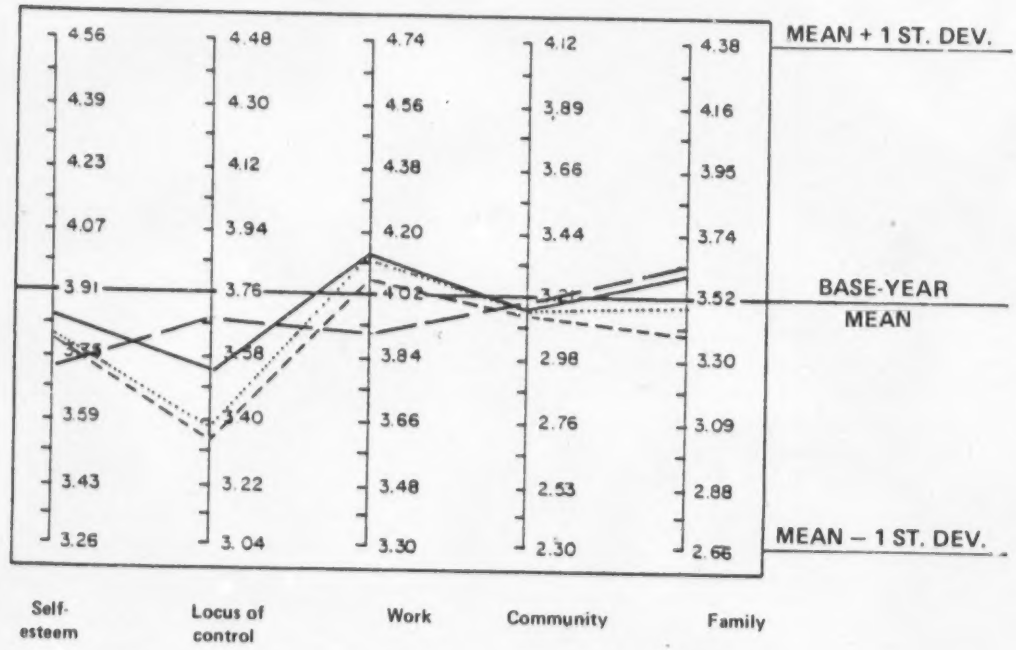
The work → study-only → work-only group during the base-year had low self-esteem, high externality, and considered the work life goal as slightly more important than average. The first followup profile for this group showed low self-esteem, even relatively greater externality, and above-average interests only on community orientation.

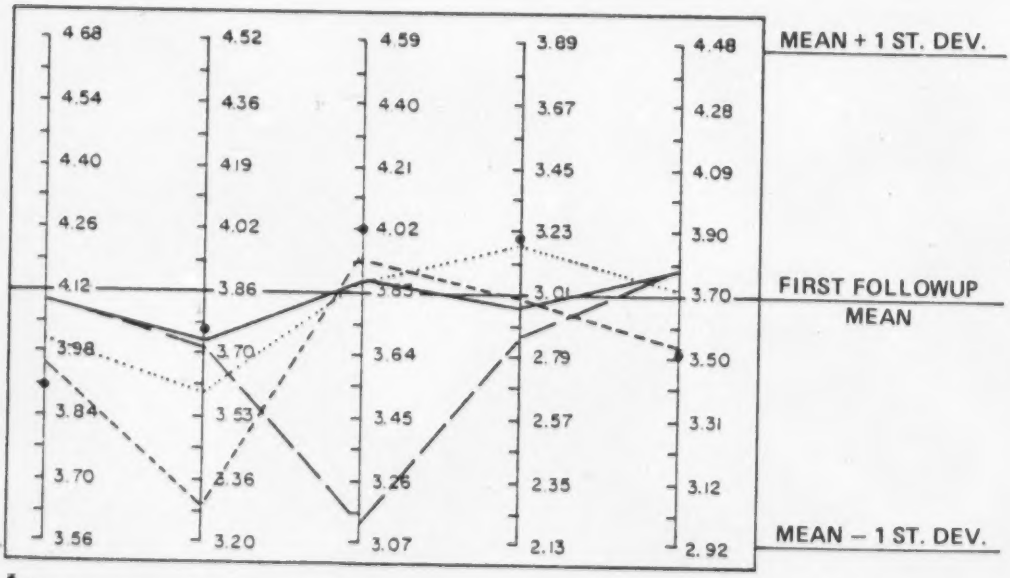
The group which had the most similar transition sequence to the above group was the work → work-only → study-only group. This group, however, was marked during the base-year and first followup by very low self-esteem, high externality, a moderately high work orientation but low community and family orientations. While this group was studying at the time of the first followup, it did not resemble any other study group. The work → study-plus-work → work-only group was external and showed above-average interest in work and slightly below-average interest on community orientation during the base-year. The first followup profile was generally similar to the total group means except for slight externality on locus of control. The work → study-plus-work → study-plus-work group had a profile with above-average work and community interests during the base-year and high self-esteem and work interests at the first followup. The above two groups were similar on plans and October '72 activities and differed in that the first group was only working while the second group was engaged in study and work on the first followup. Despite the overlapping plans and activities, these groups were quite dissimilar on the self-esteem and locus-of-control variables.

The group showing the smoothest profile was the work → work-only → study-plus-work group. During the base-year, this group did not deviate from the total group. On the first followup, however, this was the only internal work plan group. It was also slightly elevated on work-life goals.

Within the plan-to-work groups, some of the profiles were quite similar during the base-year; however, the only similarities which existed for both the base-year and first followup were between the work → work-only → work-only and the work → study-plus-work → work-only groups. The only major deviation either of these groups showed from the total group mean was that they were moderately external.

Figure 9a.--Psychological profiles for work plan - work activity groups

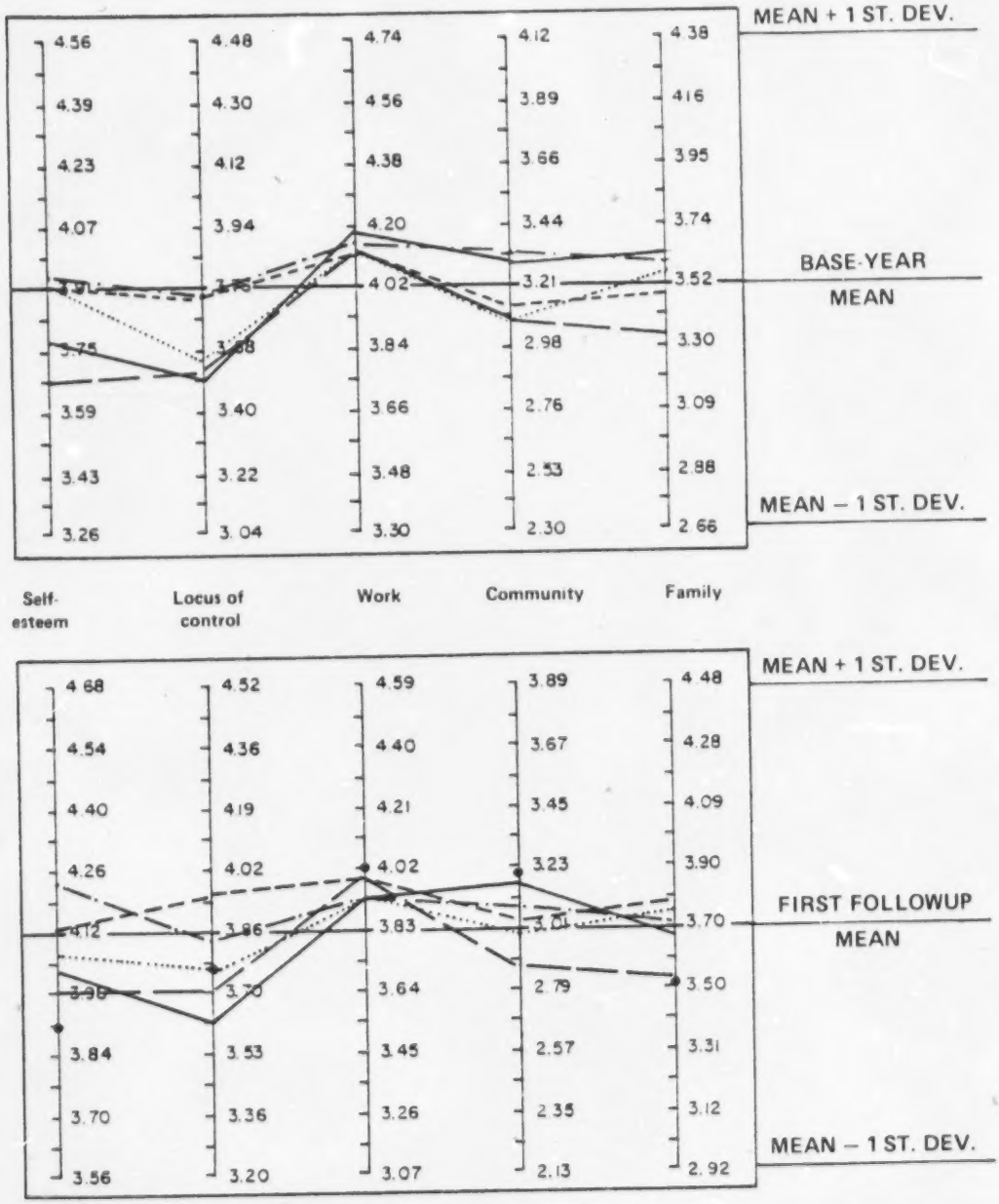




[a] Base-year means on first followup profile

Work→work only→work only
Work→work only→homemaker
Work→work only→look for work
Work→look for work→work only

Figure 9b.--Psychological profiles for work plan - study activity transition groups



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Looking across the two global planning groups (study and work), only two transition group profiles were generally similar for both the base-year and first followup; these were the study → work-only → work-only and work → study-plus-work → study-plus-work → study-plus-work groups. Similarly, overall differences between the study plan and work plan transition groups were not clearcut because of the great variation within each set of groups. The analysis of among-group differences concentrates first on the study plan groups, then the work plan groups, and finally on all major transition groups. Means and standard deivations for the transition groups are given in table A.8 in appendix A for both the study plan groups and the work plan groups.

3. Comparisons Among Study Plan Groups

Within the study plan groups, only small base-year differences on self-esteem occurred (between the three study-plus-work current activities groups plus the study → study-only → study-only group and the remaining groups). On the first followup self-esteem measure, the same clusters could be distinguished; however, the study → work-only → study-plus-work group had the highest self-esteem.

Modest differences existed within the study plan group on locus of control during the base-year, and there are even smaller differences on the first followup, but the differences were systematically related to work activities. The most internal groups are the four transition groups which only engaged in study or study-plus-work while the single most external group engaged in work-only during October of 1972 and at the time of the first followup. Changes on locus of control were generally uniform except that the most internal groups during the base-year changed the least and the study → work-only → study-plus-work increased on internality the most.

Differences on work goals were fairly small. The single clear difference among groups was the study → work-only → study-plus-work group being different from all of the remaining groups and additionally showing an increase on the work life goal while all other groups showed about average decreases. Apparently, this group which also had the highest first followup self-esteem and the greatest shift on internality was undergoing psychological changes of a positive nature which may be due to financial self support in a planned-upon activity following some initial plan frustration. A more detailed analysis might show that this group comprised mostly of low- and middle-SES students with upward mobile strivings.

Differences among the study plan groups on the other two life goals were quite small, with no adjacent means differing by more than .04 units. It is felt that these differences do not warrant further mention.

4. Comparisons Among Work Plan Groups

Self-esteem differences within the work plan transition groups are fairly small. The three transition groups engaged in some study-plus-work activity were slightly higher on self-esteem than the remaining groups and the work → work-only → homemaker and work → work-only → study-only groups had the lowest self-esteem. The first followup means show a clear separation of the high self-esteem work → study-plus-work → study-plus-work group from the remaining groups and the work → work-only → look-for-work group (which had the lowest self-esteem). Otherwise, none of the differences were very large. Increases in self-esteem were variable, with the homemaker group showing the largest increase and the work → study-plus-work → work-only group and the look-for-work groups showing the smallest increases. While the work → work-only → look-for-work group self-esteem change could be obviously anticipated, the work → study-plus-work → work-only change stood in contrast to the remaining study-plus-work group. There is the possibility that this group would have preferred to continue studying and thus has experienced the same frustrations as the look-for-work groups.

Base-year locus-of-control differences among the work plan groups were generally small and all of the groups were external. The most external groups were the look-for-work groups, and the least external were the study-plus-work activity groups. First followup differences were much greater than the base-year differences. At the time of the first followup, the work → work-only → look-for-work group was almost a full standard deviation below the group mean, due to the relative and absolute decrease in the mean score, and, by contrast, the work → look-for-work → work-only group recorded an increase. These two groups had extremely similar base-year means, but the first followup differences on locus of control apparently reflected the relationship between current unemployment and externality on locus of control. The remaining group means were relatively unchanged except that the work → work-only → study-plus-work group was on the internal side of the locus-of-control scale due to the relatively large increase from base-year to first followup.

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During the base-year the work plan transition groups were very homogeneous on work interest, with means of all but the work → work-only → homemaker group clustering together. The homemaker group showed lower interest in work goals.

On the first followup there were small differences on work interest among eight of the nine work plan transition group; however, there was a fairly clear clustering with the groups engaged in study or study-plus-work (as current activities) rating work goals as being more important than those groups which were working or looking for work. This pattern also corresponded with the pattern of changes in work orientation from the base-year to the first followup; i.e., the study and study-plus-work groups showed less of a decrease in work goal interests than did the groups actually working. The look-for-work group also showed a small decrement. Thus, experiences could lead to some derogation of work-life goals. Of course, this possibility could be contrasted with an alternate proposition, namely, those who value work-related satisfaction will continue their education in order to maximize the likelihood of fulfilling those goals.

The one group most unlike the remaining work plan transition groups on work interests was the work → work-only → homemaker group. This group, on the first followup, was extremely below the nearest group and showed the greatest decrease in work interests. While work should clearly be less important to this group, so large a change was totally unexpected. One could speculate that the relative disinterest and derogation of work-related goals was due to dissatisfaction with previously held jobs and a subsequent retreat to a homemaker role or simply an abandonment (temporary or permanent) of previous interests in the service of homemaker activities. There was not, however, a corresponding large increment on either community or family-life goals.

Community-related goals did not show large or clearly interpretable differences during the base-year. No striking commonalities occurred among the two highest groups or two lowest groups in comparison to one another or in comparison to the middle groups; however, on the first followup, there was a clustering of the various work plan transition groups. The two current activity work groups which had no work activity during October of 1972 (i.e., the work → study-only → work-only and work → look-for-work → work-only groups) ranked community goals as being more important. The five groups which had some interpolated work activity (work-only or study-plus-work) were in the middle and the two groups not involved in working or seeking work had the lowest means on community goal interests. Changes from the base-year to first followup did not show any clear patterning, but the work → look-for-work → work-only group showed an increase running counter to the overall trend, and the homemaker group showed the largest decrease. The positive change for the look-for-work group along with their high first followup evaluation of community is intriguing, but it may involve ethnic group differences. To the extent that this group primarily comprised blacks and Hispanics, the above average interest in community affairs would not be surprising.

Family goals involve the same two clusters during the base-year and the first followup. The work → work-only → look-for-work and work → work-only → study-only groups were slightly lower on family-goal importance than were the remaining groups. While ethnic group and sex differences might underlie the low interest of the look-for-work group, the low ratings by the work → work-only → study-only group were somewhat perplexing. Because this group had the lowest mean during the base-year, the difference was not an effect of transition activities. This group was also marked by low self-esteem and high externality and was deviant on both work and family interests as well. Hence, there was something unique about this group but no reason could be offered for their deviant profile without a more detailed investigation.

The primary differences existing between the work plan and study plan groups were on self-esteem and locus of control. The highest self-esteem was for the study plan groups who continued their studies (i.e., study or study-plus-work). The study plan transition groups were also more internal (all above the group mean) than the work plan groups (all group means except the first followup mean for the work → work-only → study-plus-work group being below the group mean). It should be recalled, however, that ability group differences on locus of control were large and ability associated differences most likely underlie the transition group differences as well.

VI. SUMMARY AND CONCLUSIONS

The intent of this report was to provide a description of the NLS respondents using the five psychological attributes included in the Base-Year and First Followup Questionnaires. The analyses presented were designed for several purposes. First, profiles and subgroup means were used to describe the respondents during the base-year in order to establish differences among the various demographic classification subgroups that might be related to school experiences, career plans, and subsequent activities. A second set of analyses was done on the first followup data, and the results, in conjunction with the changes from the base-year, were used to describe the demographic subgroups at the time of the first followup. Subgroup differences were related to transition states and base-year status as well. The purpose of the latter analyses was to hypothesize causal roles for the psychological attributes at the base-year, as well as to present the description of first followup psychological status differences resulting from different transition sequences. This material was necessarily speculative, and resolving the issue of whether the attributes were determinants or codeterminants of career preferences or activities, or merely covariants of some more basic determinant, was beyond the scope of this or any correlational study.

A. Summary of Profile Analyses for Major Classification Groups

The base-year sample was typified by high self-esteem and an internal stance on locus of control. Work and family were considered somewhat important, but community importance ratings were near the scale midpoint indicating indifference. There was substantial variance on each scale, which to a modest degree could be associated with some of the classification variables and transition sequences.

During the base-year, the sex, ethnic, ability, SES, and high school program classification groups showed small and negligible differences on self-esteem. Locus of control emerged as an important correlate of ability. In particular, the high-ability group considered itself more internal (i.e., more in control of the environment) than did the middle- or low-ability group; the latter was most external. There was a strong possibility that the ability-group differences underlie some of the other locus-of-control differences (i.e., SES and high school program); however, the ethnic-group differences appeared independent of the ability-related locus-of-control differences. The ethnic-group data also showed whites to be the most internal.

The base-year data also showed an association between the background and demographic variables and work, community, and family goal orientations. Work orientation differences were not large and occurred where expected; e.g., males were more work oriented than were females. Equally large differences occurred for ability (lower ability giving higher importance ratings) and ethnicity (blacks and Hispanics were more work oriented than were whites).

Community orientation differences were quite large among the ethnic subgroups (blacks, the most community oriented; whites, the least). Smaller differences also occurred among SES and ability classifications. While the low SES group's high community orientation could be partly accounted for by ethnic composition, a supplementary analysis of ability by ethnic subgroups indicated that high-ability blacks were not highly community oriented compared with low-ability blacks. Neither high- nor low-ability whites were particularly community oriented.

Family orientation differences were generally too small to warrant discussion, with the only exception being that Hispanics (compared with blacks and whites) showed the greatest family orientation.

The total first followup sample (as well as the respondents at first followup who were present during the base-year) had means differing slightly from the base-year means. The means indicated a self-esteem greater than the base-year and a slight increase in internality. Goal orientations for work and community were lower, but family interest was slightly increased. The goal orientations interpreted relative to the scale labels were unchanged: the means indicated that work and family were moderately important and community interest was at the scale midpoint. For most of the subgroup classifications, the first followup profiles (taken as deviations around first followup total group means) were virtually identical with the base-year; i.e., the subgroup orderings and differences were relatively unchanged.

B. Summary of Analyses for Plan, Activity, and Transition Groups

The base-year means on self-esteem generally showed small differences among the planning subgroups; however, moderately large self-esteem differences existed among the plan groups and various subgroups associated with first followup activity and transition classifications. In particular, the work plan and no plan ("other") groups had low self-esteem, and interestingly for predictive purposes, respondents who would be looking for work over a year later had low self-esteem during the base-year.

Large differences on locus of control also existed among plan groups and among base-year subgroups associated with various transition and activity classifications. While some of these differences may be related to ability and ethnic group differences, other differences were larger and probably independent. In particular, persons high in internality during the base-year were most likely to be involved in study or study-plus-work activities at the time of the first followup, and persons external on locus of control would be more likely to be engaged in work only or would be looking for work. The look-for-work group, in fact, was quite deviant on locus of control during the base-year.

The base-year data also showed differences among subgroups on work, community, and family orientations. Homemakers (plan or current acitivity), and "others" were generally the lowest on work orientation.

Homemakers had the highest family orientation ratings and the miltary and "other" plan and activity groups had the lowest family-orientation ratings. There is a potential problem for the latter groupings in that the family orientation scale leaned heavily on staying in the home community, an activity quite antithetical to military or travel plans.

Compared with base-year subgroup differences and deviations from total group means, the first followup profiles for the study plan groups (and transition groups which planned to study) were relatively unchanged. Some striking differences did occur for the current-activity subgroups and two of the work-plan transition subgroups. Specifically, the military current-activity group increased in self-esteem and community orientation, and the "other" group drastically decreased in self-esteem and became more external on locus of control (making their profile more similar to the "other" plan group profile). Marked changes also occurred for homemakers and look-for-work respondents (classified either globally on current activity or as work-plan → work-only transition groups). Homemakers rated work as extremely unimportant compared to other subgroups. The look-for-work respondents, who were relatively low on self-esteem and external on locus of control during the base year, had become even more deviant at the time of the first followup, apparently in reaction to the frustration of not finding work.

C. Conclusions

One conclusion seemed unequivocal: clear and predictable differences among subgroups on the psychological attribute profiles. Most of these differences, however, existed at the time of the initial assessment (base-year) and were unmodified (relative to the total population) at the time of the first followup. The persistence of demographic differences unmodified by intervening experiences might be due partly to a heterogeneity of experiences within demographic classifications that might tend to diminish differences over a long period of time, but not over a short-term (one and one-half year) interval.

Differences for subgroups classified according to activity states and transition states were more marked; those showing the greatest changes in profiles also appeared to be those which experienced the greatest changes in activities (e.g., work to look for work, or work to homemaker, or military to work). In this regard, perhaps further analysis of these transition subgroups, with appropriate controls on demographic variables, is necessary. Perhaps maximum use could be made of the data by predicting transition states from demographic and base-year psychological attributes and predicting psychological attribute states from base-year data and transition states. While this type of modeling was beyond the scope of the project, there seemed to be sufficient differences to warrant further analyses.

VII. BIBLIOGRAPHY

Bachman, J. G. & O'Malley, P. M. Self-sesteem in young men: a longitudinal analysis of the impact of educational and occupational attainment. Unpublished manuscript. Institute for Social Research, University of Michigan, 1975.

Baron, R. M., & Gantz, R. L. Effects of locus of control and type of feedback on the task performance of lower-class black children. *Journal of Personality and Social Psychology*, 1972, *21*, 124-130.

Battle, E. S., & Rotter, J. B. Children's feelings of personal control as related to social class and ethnic group. *Journal of Personality*, 1963, *31*, 482-490.

Bialer, I. Conceptualization of success and failure in mentally retarded and normal children. *Journal of Personality* 1961, *29*, 303-320.

Butterfield, E. C. Locus of control, test anxiety, reactions to frustrations, and achievement attitudes. *Journal of Personality*, 1964, *32*, 355-370.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. *Equality of educational opportunity*. Superintendent of Documents, Catalog No. FS5.238:38001. Washington, D. C.: Government Printing Office, 1966.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. *Child Development*, 1965, *36*, 91-109.

Crandall, V. J., Katkovsky, W., & Preston, Anne. Motivational and ability determinants of young children's intellectual achievement behavior. *Child Development*, 1962, *33*, 643-661.

DuCette, J. P., & Wolk, S. Locus of control and extreme behavior. *Journal of Consulting and Clinical Psychology*, in press.

DuCette, J. P., Wolk, S., & Soucar, E. Atypical patterns in locus of control and maladjustive behavior. *Journal of Personality*, in press.

Feather, N. T. Change in confidence following success or failure as a predictor of subsequent performance. *Journal of Personality and Social Psychology*, 1968, *9*, 38-46.

Forward, J. R., & Williams, J. R. Internal-external control and black militancy. *Journal of Social Issues*, 1970, *26*, 75-91.

Franklin, R. D. Youth's expectancies about internal versus external control of reinforcement related to N variables. Unpublished doctoral dissertation, Purdue University, 1963.

Gore, P. M., & Rotter, J. B. A personality correlate of social action. *Journal of Personality*. 1963, *31*, 58-64.

Graves, T. D. Time perspective and the deferred gratification pattern in a tri-ethnic community. Unpublished doctoral dissertation, University of Pennsylvania, 1961.

Gurin, P., Gurin, G., Lao, R. C., & Beattie, M. Internal-external control in the motivational dynamics of Negro youth. *Journal of Social Issues*, 1969, *25*, 29-63.

Havighurst, R. J. Development Tasks and Education (2nd edition). New York: David McKay Co., 1952.

Hersch, P. D., & Scheibe, K. E. Reliability and validity of internal-external control as a personality dimension. *Journal of Consulting Psychology*, 1967, *31*, 609-614.

Julian, J. W., & Katz, S. B. Internal versus external control and the value of reinforcement. *Journal of Personality and Social Psychology*, 1968, *8*, No. 1, 89-94.

Lao, R. C. Internal-external control and competent and innovative behavior among Negro college students. *Journal of Personality and Social Psychology*, 1970, *14*, No. 3, 263-270.

Lefcourt, H. M. Internal versus external control of reinforcement: A review. *Psychological Bulletin*, 1966, *65*, 206-220.

Lefcourt, H. M., & Ladwig, G. W. The American Negro: A problem in expectancies. *Journal of Personality and Social Psychology*, 1965, *1*, 377-380.

Liverant, S., & Scodel, A. Internal and external control as determinants of decision making under conditions of risk. *Psychology Reports*, 1960, *7*, 59-67.

Mayeske, G. W., Okada, T., & Beaton, A. E. *A study of the attitude toward life of our nation's students*. Washington: U. S. Government Printing Office, 1973.

McGhee, P. E., & Crandall, V. C. Beliefs in internal-external control of reinforcements and academic performance. *Child Development*, 1968, *39*, 91-102.

Phares, E. J. Internal-external control as a determinant of amount of social influence exerted. *Journal of Personality and Social Psychology*, 1965, *2*, 642-647.

Rosenberg, M. *Society and the adolescent self-image*. Princeton University Press, 1965.

Rosenberg, M., & Simmons, R. G. *Black and white self-esteem: the urban school child*. Washington, D. C.: American Sociological Association.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. *Pschological Monographs*, 1966, *80*, No. 1 (Whole No. 609).

Rotter, J. B., Liverant, S., & Seeman, M. Internal versus external control of reinforcements: A major variable in behavior therapy. In N. Washburne (Ed.), *Decisions, values, and groups*, Volume II. London: Pergamon Press, 1963.

Rotter, J. B., & Multry, R. C. Internal versus external control of reinforcement and decision time. *Journal of Personality and Social Psychology*, 1965, *2*, 598-604.

Schalon, C. L. Effect of self-esteem upon performance following failure stress. *Journal of Consulting and Clinical Psychology*, 1968, *32*, 497.

Ude, L. K., & Vogler, R. E. Internal versus external control of reinforcement and awareness in a conditioning task. *The Journal of Psychology*, 1969, *73*, 63-67.

APPENDIXES

A. Tables of Means, Standard Deviations, and Subgroup Sample Sizes

B. Standard Errors of Means

APPENDIX A

TABLES OF MEANS, STANDARD DEVIATIONS, AND SUBGROUP SAMPLE SIZES

Table A.1.--Means, standard deviations, and sample sizes of psychological attributes for sex groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Males															
Mean	3.94	4.13	0.19	3.68	3.81	0.12	4.16	3.99	-0.17	3.21	3.03	-0.17	3.49	3.64	0.15
Standard deviation	.63	.55	.66	.73	.66	.75	.73	.72	.78	.94	.91	.94	.89	.80	.95
Sample size (n)	7,610	7,166	7,118	7,598	7,159	7,100	7,621	7,176	7,141	7,603	7,161	7,109	7,609	7,163	7,114
Females															
Mean	3.87	4.10	.22	3.83	3.91	.07	3.89	3.68	-.21	3.22	2.98	-.24	3.55	3.76	.20
Standard deviation	.67	.56	.68	.71	.65	.72	.72	.79	.85	.87	.86	.89	.84	.77	.91
Sample size (n)	7,936	7,647	7,618	7,933	7,648	7,616	7,938	7,659	7,632	7,927	7,648	7,613	7,931	7,659	7,626

Table A.2.--Means, standard deviations, and sample sizes of psychological attributes for ethnic groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Black															
Mean	4.02	4.15	0.13	3.48	3.52	0.04	4.30	4.16	-0.13	3.77	3.57	-0.20	3.47	3.58	0.11
Standard deviation	.66	.55	.70	.82	.76	.83	.61	.66	.74	.83	.82	.92	.89	.78	1.02
Sample size (N)	1,902	1,805	1,788	1,892	1,805	1,779	1,899	1,809	1,792	1,888	1,801	1,775	1,887	1,804	1,773
White															
Mean	3.90	4.12	.21	3.81	3.91	.09	4.00	3.79	-.21	3.15	2.94	-.21	3.53	3.71	.18
Standard deviation	.65	.55	.66	.69	.63	.72	.74	.78	.82	.89	.87	.91	.86	.78	.91
Sample size (N)	11,910	11,362	11,328	11,907	11,359	11,322	11,921	11,377	11,356	11,912	11,365	11,336	11,919	11,377	11,353
Hispanic															
Mean	3.93	4.11	.18	3.49	3.63	.15	4.14	4.01	-.12	3.53	2.41	-.15	3.68	3.80	.11
Standard deviation	.63	.58	.71	.80	.71	.77	.63	.67	.75	.85	.88	.90	.84	.82	1.02
Sample size (N)	675	646	643	673	645	640	673	646	640	670	643	634	672	642	635

Table A.3.--Means, standard deviations, and sample sizes of psychological attributes for SES groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Low SES															
Mean	3.87	4.06	0.20	3.56	3.68	0.12	4.09	3.89	-0.20	3.37	3.18	-0.19	3.57	3.71	0.14
Standard deviation	.67	.55	.69	.77	72	.79	.69	.76	.82	.87	.87	.90	.84	.79	.95
Sample size (N)	4,697	4,455	4,420	4,682	4,450	4,401	4,697	4,461	4,428	4,679	4,455	4,407	4,683	4,459	4,410
Middle SES															
Mean	3.89	4.12	.23	3.78	3.89	.10	4.03	3.83	-.20	3.19	2.98	-.21	3.54	3.74	.20
Standard deviation	.65	.53	.65	.71	.64	.72	.73	.77	.81	.91	.87	.91	.86	.77	.93
Sample size (N)	7,286	6,924	6,893	7,287	6,925	6,894	7,298	6,935	6,917	7,292	6,918	6,894	7,296	6,927	6,907
High SES															
Mean	3.98	4.17	.18	3.94	3.99	.05	3.94	3.78	-.16	3.08	2.87	-.21	3.44	3.61	.17
Standard deviation	.64	.60	.66	.63	.60	.70	.79	.79	.82	.92	.90	.93	.87	.81	.91
Sample size (N)	3,496	3,405	3,396	3,497	3,403	3,395	3,496	3,410	3,401	3,492	3,407	3,395	3,495	3,407	3,397

Table A.4.–Means, standard deviations, and sample sizes of psychological attributes for ability groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Low															
Mean	3.88	4.07	0.19	3.35	3.54	0.19	4.19	3.99	-0.19	3.37	3.23	-0.14	3.57	3.75	0.20
Standard deviation	.65	.55	.70	.77	.72	.84	.68	.74	.83	.89	.87	.94	.84	.83	1.05
Sample size (N)	4,325	4,054	4,003	4,316	4,049	3,988	4,333	4,059	4,018	4,312	4,046	3,986	4,316	4,052	3,992
Middle															
Mean	3.88	4.11	.23	3.80	3.91	.10	4,06	3.83	-.22	3.22	3.02	-.20	3.54	3.72	.18
Standard deviation	.65	.55	.67	.66	.61	.71	.70	.75	.80	.90	.86	.92	.86	.77	.91
Sample size (N)	6,576	6,258	6,245	6,572	6,257	6,241	6,579	6,271	6,261	6,573	6,263	6,247	6,579	6,268	6,258
High															
Mean	3.98	4.17	.18	4.07	4.07	.00	3.83	3.70	-.13	3.06	2.81	-.25	3.44	3.62	.15
Standard deviation	.65	.56	.64	.59	.57	.65	.80	.82	.83	.92	.89	.89	.87	.77	.86
Sample size (N)	3,883	3,778	3,772	3,883	3,778	3,772	3,881	3,784	3,776	3,880	3,780	3,772	3,879	3,782	3,773

Table A.5.--Means, standard deviations, and sample sizes of psychological attributes for high school program groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
General															
Mean	3.86	4.08	0.23	3.63	3.76	0.13	4.03	3.82	-0.19	3.19	3.03	-0.16	3.51	3.69	0.18
Standard deviation	.66	.55	.68	.73	.67	.76	.75	.80	.84	.89	.88	.92	.87	.79	.96
Sample size	5,189	4,898	4,858	5,180	4,889	4,843	5,200	4,898	4,870	5,185	4,887	4,846	5,187	4,891	4,851
Academic															
Mean	3.97	4.15	.18	3.94	3.99	.04	3.99	3.83	-.16	3.21	2.97	-.24	3.51	3.67	.16
Standard deviation	.65	.56	.64	.65	.60	.68	.75	.76	.79	.93	.90	.91	.85	.78	.90
Sample size (N)	6,449	6,217	6,198	6,445	6,219	6,196	6,449	6,227	6,208	6,442	6,219	6,194	6,448	6,224	6,205
Voctech															
Mean	3.86	4.09	.23	3.56	3.73	.16	4.11	3.86	-.24	3.24	3.06	-.18	3.57	3.77	.20
Standard deviation	.65	.55	.69	.76	.71	.79	.69	.77	.83	.88	.85	.91	.89	.79	.97
Sample size (N)	3,904	3,694	3,676	3,902	3,695	3,673	3,906	3,706	3,691	3,899	3,699	3,678	3,901	3,703	3,680

Table A.6.--Means, standard deviations, and sample sizes of psychological attributes for plan groups: base year only

Group	Self-esteem	Locus of control	Work	Community	Family
Study					
Mean	3.96	3.90	4.02	3.24	3.55
Standard deviation	.64	.66	.72	.92	.84
Sample size (N)	9,530	9,523	9,529	9,521	9,520
Work					
Mean	3.83	3.53	4.10	3.18	3.53
Standard deviation	.66	.76	.70	.88	.90
Sample size (N)	5,193	5,188	5,203	5,186	5,193
Military					
Mean	3.92	3.66	4.14	3.26	3.29
Standard deviation	.62	.72	.68	.92	.90
Sample size	591	589	590	589	589
Homemaker					
Mean	3.93	3.65	3.58	3.16	3.65
Standard deviation	.61	.73	.90	.80	.78
Sample size (N)	465	465	465	465	466
Other					
Mean	3.78	3.41	3.74	3.00	3.13
Standard deviation	.73	.76	1.00	.98	1.06
Sample size (N)	719	715	724	719	723

Table A.7.--Means, standard deviations, and sample sizes of psychological attributes for current activity state groups

Group	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Study only															
Mean	3.95	4.14	0.19	3.95	3.96	0.01	4.00	3.86	-0.14	3.22	3.02	-0.20	3.55	3.69	0.14
Standard deviation	66	58	.65	.65	.61	.68	.76	.76	.78	.94	.92	.88	.84	.76	.87
Sample size (N)	3,870	3,739	3,726	3,866	3,739	3,722	3,868	3,749	3,734	3,863	3,744	3,725	3,862	3,746	3,726
Work															
Mean	3.86	4.09	.23	3.61	3.74	.13	4.06	3.86	-.20	3.18	3.04	-.14	3.53	3.75	.22
Standard deviation	.65	.54	.69	.74	.68	.76	.72	.76	.82	.88	.88	.91	.88	.82	.98
Sample size (N)	6,213	5,871	5,834	6,207	5,867	5,825	6,226	5,876	5,851	6,207	5,861	5,818	6,212	5,870	5,832
Study + work															
Mean	3.97	4.18	.21	3.91	3.98	.07	4.02	3.92	-.10	3.22	3.04	-.18	3.55	3.69	.14
Standard deviation	.63	.53	.63	.67	.61	.70	.72	.72	.77	.90	.88	.92	.82	.78	.89
Sample size (N)	3,307	3,219	3,206	3,306	3,220	3,205	3,308	3,222	3,211	3,306	3,220	3,207	3,306	3,221	3,206
Military															
Mean	3.92	4.23	.31	3.61	3.81	.20	4.24	3.98	-.26	3.26	3.36	+.10	3.33	3.59	.26
Standard deviation	.65	.48	.69	.72	.60	.68	.68	.70	.82	.98	.88	.93	.90	.78	1.03
Sample size (N)	393	333	330	391	331	326	394	333	331	394	332	330	394	332	330
Homemaker only															
Mean	3.85	4.10	.25	3.66	3.73	.07	3.84	3.26	-.58	3.28	3.06	-.22	3.57	3.87	.20
Standard deviation	.65	.52	.66	.77	.69	.78	.80	.86	.99	.86	.86	.91	.76	.76	.93
Sample size (N)	680	636	633	680	637	634	680	638	635	680	639	636	682	640	639
Look for work															
Mean	3.83	3.95	.12	3.50	3.46	-.04	4.04	3.92	-.12	3.14	3.14	.00	3.35	3.51	.16
Standard deviation	.70	.61	.74	.77	.79	.87	.76	.78	.86	.94	.90	.93	.98	.82	1.02
Sample size (N)	579	543	539	576	543	537	580	544	540	578	541	536	579	541	437
Other															
Mean	3.92	4.14	.22	3.75	3.80	.05	3.88	3.72	-.16	3.18	2.92	-.26	3.39	3.63	.24
Standard deviation	.64	.52	.62	.71	.69	.83	.92	.84	.85	1.06	.94	1.01	1.00	.78	.91
Sample size (N)	185	175	171	187	174	172	185	175	172	184	175	172	187	175	173

*Table A.8.--Means and standard deviations of psychological attributes for transition groups initially planning to study**

Group Plans '72 → act '72 → current activities	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Study → study only → study only															
Mean	3.99	4.15	0.16	4.00	4.00	0.00	3.98	3.84	-0.14	3.24	2.96	-0.28	3.57	3.71	0.14
Standard deviation	.64	.57	.63	.60	.58	.64	.76	.76	.78	.94	.90	.89	.84	.74	.84
Study → study only → work only															
Mean	3.91	4.12	.21	3.77	3.88	.11	4.04	3.78	-.26	3.18	2.88	-.30	3.51	3.73	.22
Standard deviation	.65	.55	.67	.69	.61	.68	.66	.78	.81	.92	.88	.92	.86	.84	.91
Study → study only → study + work															
Mean	4.01	4.17	.16	3.98	4.03	.05	3.96	3.82	-.14	3.28	2.98	-.30	3.51	3.61	.10
Standard deviation	.64	.56	.64	.63	.59	.68	.74	78	.76	.90	.88	.87	.84	.74	.90
Study → Work only → study only															
Mean	3.87	4.03	.16	3.80	3.94	.14	4.04	3.84	-.20	3.16	2.92	-.24	3.49	3.65	.12
Standard deviation	.69	.58	.64	.77	.62	.79	.86	.74	.78	.90	.90	.79	.80	.72	.85
Study → work only → work only															
Mean	3.89	4.08	.19	3.71	3.83	.12	4.10	3.86	-.24	3.32	3.04	-.28	3.55	3.77	.22
Standard deviation	.64	.56	.67	.71	.65	.74	.64	.78	.76	.86	.88	.93	.80	.78	.90
Study → work only → study + work															
Mean	4.01	4.25	.24	3.77	3.95	.18	4.00	4.06	+.06	3.28	3.10	-.18	3.55	3.77	.22
Standard deviation	.57	.51	.59	.63	.62	.71	.74	.72	.81	.82	.94	.81	.90	.70	.96
Study → study + work → study only															
Mean	3.91	.411	.20	3.98	4.03	.05	4.04	3.88	-.16	3.22	3.04	-.18	3.57	3.67	.10
Standard deviation	.65	.61	.68	.63	.61	.70	.74	.72	.73	.94	.90	.85	.82	.84	.89
Study → study + work → work only															
Mean	3.93	4.12	.19	3.81	3.89	.08	4.04	3.88	-.16	3.28	3.04	-.24	3.55	3.67	.12
Standard deviation	.62	.55	.67	.70	.63	.71	.79	.76	.78	.88	.88	.86	.84	.80	.98
Study → study + work → study + work															
Mean	3.99	4.18	.19	3.97	4.01	.04	4.06	3.94	-.12	3.20	2.98	-.22	3.61	3.69	.08
Standard deviation	.62	.52	.61	.65	.60	.70	.68	.70	.76	.92	.88	.93	.78	.76	.81

*Sample sizes are given in Table A.10.

*Table A.9.--Means and standard deviations of psychological attributes for transition groups initially planning to work**

Group Plans '72 → act '72 → current activities	Self-esteem			Locus of control			Work			Community			Family		
	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change	BY	FFU	Change
Work → study only → work only															
Mean	3.77	4.03	0.26	3.49	3.62	0.13	4.18	3.92	-0.26	3.30	3.18	-0.12	3.63	3.69	0.06
Standard deviation	.66	.51	.62	.68	.74	.83	.72	.72	.79	.92	.80	.86	.84	.84	.98
Work → work only → study only															
Mean	3.68	3.98	.30	3.50	3.70	.20	4.12	4.00	-.12	3.08	2.88	-.20	3.35	3.53	.18
Standard deviation	.71	.61	.74	.79	.76	.80	.64	.76	.82	1.04	.94	1.04	1.02	.78	1.09
Work → work only → work only															
Mean	3.84	4.09	.24	3.54	3.73	.19	4.14	3.86	-.28	3.16	2.96	-.20	3.61	3.79	.18
Standard deviation	.65	.54	.69	.74	.69	.79	.68	.76	.80	.84	.84	.90	.86	.78	.98
Work → work only → study + work															
Mean	3.91	4.13	.22	3.72	3.96	.24	4.12	4.00	-.12	3.14	3.04	-.10	3.49	3.79	.30
Standard deviation	.57	.52	.67	.69	.57	.64	.64	.70	.70	.86	.94	1.04	.94	.72	.97
Work → work only → homemaker															
Mean	3.73	4.09	.36	3.68	3.72	.04	3.92	3.12	-.80	3.20	2.86	-.34	3.63	3.79	.16
Standard deviation	.71	.49	.74	.78	.66	.83	.74	.88	.98	.88	.84	.92	.78	.84	.89
Work → work only → look for work only															
Mean	3.78	3.94	.16	3.35	3.30	-.05	4.06	3.92	-.14	3.12	3.00	-.12	3.39	3.53	.14
Standard deviation	.72	.65	.81	.87	.80	.75	.76	.80	.81	.88	.88	.99	.84	.80	.92
Work → study + work → work only															
Mean	3.91	4.07	.16	3.54	3.76	.22	4.12	3.92	-.20	3.08	3.00	-.08	3.55	3.75	.20
Standard deviation	.64	.57	.74	.76	.67	.76	.68	.74	.83	.96	.90	.90	1.06	.92	1.14
Work → study + work → study + work															
Mean	3.92	4.23	.31	3.74	3.84	.10	4.16	4.00	-.16	3.32	3.08	-.24	3.59	3.71	.12
Standard deviation	.65	.48	.63	.74	.60	.64	.68	.72	.72	.96	.94	.75	.82	.76	.75
Work → look for work → work only															
Mean	3.79	4.01	.22	3.37	3.59	.22	4.12	3.86	-.26	3.14	3.18	+.04	3.49	3.71	.22
Standard deviation	.67	.62	.68	.74	.70	.77	.76	.82	.88	.92	.82	.81	.96	.80	.91

*Sample sizes are given in Table A.10.

Table A.10.--Sample sizes for base year, first followup, and change scores for transition groups

Group Plans '72 → act '72 → current activities	Self-esteem	Locus of control	Work	Community	Family
Study → study only → study only	2,532	2,534	2,542	2,539	2,539
Study → study only → work only	585	583	584	583	583
Study → study only → study + work	965	964	966	965	965
Study → work only → study only	135	135	136	136	136
Study → work only → work only	718	718	723	721	721
Study → work only → study + work	189	190	189	190	189
Study → study + work → study only	549	547	544	542	544
Study → study + work → work only	588	587	591	588	588
Study → study + work → study + work	1,387	1,387	1,387	1,385	1,386
Work → study only → work only	131	131	134	133	133
Work → work only → study only	97	95	99	98	98
Work → work only → work only	2,285	2,284	2,292	2,281	2,288
Work → work only → study + work	208	208	211	211	210
Work → work only → homemaker	120	120	120	120	120
Work → work only → look for work	146	146	148	147	147
Work → study + work → work only	215	215	216	214	216
Work → study + work → study + work	158	158	160	159	159
Work → look for work → work only	150	149	151	148	148

APPENDIX B
STANDARD ERRORS OF MEANS

The procedure used to estimate mean scores or differences in this survey involved the application of sample weights to allow unbiased estimates of national parameters. The weights were calculated as the inverse of sample inclusion probabilities for all students sampled, and were adjusted for nonresponse of the sample members. The sum of the individual weights was thus an estimate of the total number of the 1972 high school seniors in the United States.

Since the estimates are based on a sample, they may differ somewhat from the figures that would have been obtained if the entire population of the 1972 high school seniors was surveyed using the same survey procedures. As in any sample survey study, the results obtained from samples are therefore subject to sampling error as well as response errors and data processing errors.

The standard error is primarily a measure of sampling variability; that is, it reflects the variations that occur by chance because a sample rather than the entire 1972 high school class was surveyed. By referring to a statistic's standard error, one may infer in probability terms how close the sample value is to the population value, and, consequently, how confident one may be in making inferences concerning a population parameter. For example, one may claim that the chances are about 68 out of 100 than an estimate from the sample would differ from the population value by less than the standard error, that the chances are about 90 out of 100 that the sample value would differ from the population value by less than 1.6 times the standard error, and that the chances are about 95 out of 100 that the difference between sample and population values would be less than twice the standard error.

This appendix provides approximate standard errors for the means discussed in this report. One table (B.1) is presented for use with the major classification groups and a second table (B.2) is presented for use with the planning, activity and transition groups. The methods of standard error approximations and guidelines for their use are provided below.

Standard Errors for Major Classification Groups

The standard errors for means for the total, sex, ethnic, SES, ability and high school program subgroups were calculated by the RTI computer program STERR. For each subgroup, the average design effect was determined from the ratios of actual standard deviations to observed random sample deviations for the five psychological measures during base-year and first followup, and for the base-year to first followup difference. Standard errors were then computed for each group based on the average number of respondents, sample standard deviation and average design effect for base-year and first followup, combined, and the base-year to first followup change. The base-year and first year followup standard errors are reported jointly because of the overall similarity of their sample standard deviations. The formula used to calculate the approximate standard errors was:

$$SE(M) = ADE \frac{s}{\sqrt{n}}$$

where:

ADE = average design effect for the specific classification group
s = (weighted) sample standard deviation for the specific classification group
n = average number of respondents for the specific classification group

Approximate standard errors generated by the above approach are presented in Table B.1. This table provides standard errors for each of the major classification groups for each of the psychological measures. Its use is demonstrated in the following example:

Table B.1.--Approximate standard errors for major classification groups

	Average number of respondents	Average design effect	Self-esteem		Locus of control		Work		Community		Family	
			BY & FFU	Change	BY & FFU	Change	BY & FFU	Change	BY & FFU	Change	BY & FFU	Change
Total	16,798	1.46	0.006	0.007	0.007	0.007	0.007	0.007	0.008	0.009	0.007	0.008
Sex												
Male	8,151	1.35	.008	.009	.009	.009	.009	.010	.012	.012	.010	.012
Female	8,634	1.40	.008	.009	.009	.009	.009	.010	.011	.011	.010	.011
Race												
Black	2,082	0.98	.013	.015	.017	.017	.013	.015	.017	.020	.017	.022
White	12,565	1.49	.007	.008	.007	.008	.009	.009	.010	.010	.009	.010
Hispanic	708	1.06	.023	.027	.031	.031	.031	.031	.035	.035	.035	.039
Socioeconomic status												
Low	4,127	1.22	.090	.010	.010	.012	.010	.012	.014	.014	.012	.015
Middle	6,365	1.41	.090	.010	.010	.010	.012	.012	.013	.013	.011	.012
High	3,811	1.42	.011	.013	.011	.013	.015	.015	.017	.017	.015	.017
Ability												
Low	5,075	1.17	.010	.012	.013	.014	.012	.014	.015	.015	.014	.018
Middle	7,803	1.45	.009	.010	.008	.010	.010	.011	.012	.012	.011	.012
High	3,823	1.37	.011	.012	.011	.012	.011	.012	.015	.015	.015	.016
High school program												
General	5,692	1.33	.009	.011	.011	.012	.012	.013	.014	.014	.013	.015
Academic	6,929	1.46	.009	.010	.009	.010	.011	.012	.013	.013	.012	.013
Voctech	4,142	1.30	.011	.012	.012	.014	.013	.014	.016	.016	.015	.018

During base-year, blacks had a mean self-esteem rating of 4.02 and whites had a mean self-esteem rating of 3.90. From Table B.1, the standard error of the mean (for self-esteem) is .013 for blacks and .007 for whites. Using the large sample independent groups t-test, the hypothesis that these means differ can be evaluated as follows:

$$t = \frac{M_{blacks} - M_{whites}}{\sqrt{S.E._{blacks}^2 + S.E._{whites}^2}} = \frac{4.02 - 3.90}{\sqrt{.013^2 + .007^2}} = 8.13$$

This value of t is significant beyond the .001 level, showing that blacks rated themselves higher on self-esteem than did whites.

Standard Errors for Planning, Activity and Transition Groups

The standard errors for these subgroups are based on generalized standard errors. These were estimated by substituting an overall mean design effect for the specific classification group average design effect. The overall mean design effect (equal to 1.35) was calculated by averaging the design effects for the major classifications groups described above and in addition, design effects for four geographical region subgroups were included. Thus the overall mean design effect is based on 285 individually calculated design effects.

Table B.2 presents estimated standard errors as a function of sample size and (weighted) sample standard deviation. Its use is demonstrated in the following example:

The "look for work" current activity group became more external on locus of control (e.g., decrease of .04 unts) for first followup as compared to base-year while the overall population trend was an increase of .09 units. A reasonable hypothesis to test is whether the mean decrease of .04 units evidenced by the "look for work" group is significantly different from a hypothetical population increase of .09 units. This hypothesis can be tested by a t-test on difference scores as follows:

$$t = \frac{M_d - .09}{\text{est } SE(M_d)}$$

where M_d = the mean change for the "look for work" group ($M_d = .04$).

est $SE(M_d)$ = estimated standard error of the mean change.

The standard deviation for the "look for work" group change on locus of control is .87 units based on 537 cases. The approximate standard error of the mean change is found from Table B.2 for the joint values (.87, 537). Since these values do not appear in the table, the values for (S = .90, n = 500) were used to provide a conservative estimate of the standard error. If the difference is significant for (.90, 500), it will also be significant for (.87, 537). Borderline significance could be further evaluated by linear interpolation. The table of approximate standard errors yields a value of SE (.90, 500) = .0468. Thus the t-test is:

$$t = \frac{-.04 - .09}{.0468} = \frac{-.13}{.0468} = -2.7788$$

This value of t is significant at $p < .01$ for 536 degrees of freedom, showing that the "look for work" current activity group decreased on locus of control relative to a hypothetical increase of a .09 units.

Table B.2.–Estimated standard errors of means as a function of sample size and sample standard deviations

Sample size	Sample standard deviations						
	0.50	0.60	0.70	0.80	0.90	1.00	1.10
100	.058	.070	.081	.093	.105	.116	.128
150	.047	.057	.066	.076	.085	.095	.104
200	.041	.049	.058	.066	.074	.082	.090
300	.034	.040	.047	.054	.060	.067	.074
500	.026	.031	.036	.042	.047	.052	.057
750	.021	.025	.030	.034	.038	.042	.047
1,000	.018	.022	.026	.029	.033	.037	.040
1,250	.016	.020	.023	.026	.030	.033	.036
1,500	.015	.018	.021	.024	.027	.030	.033
2,000	.013	.016	.018	.021	.023	.026	.029
2,500	.012	.014	.016	.019	.021	.023	.026
5,000	.008	.010	.012	.013	.015	.016	.018

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